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Experiencing Kyoto: Evaluating Augmented Reality Audio Guides

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Experiencing Kyoto: Evaluating Augmented Reality Audio Guides

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Kyoto, Japan IQP
Worcester Polytechnic Institute



WPI

Experiencing Kyoto: Evaluating Augmented Reality Audio Guides

An Interactive Qualifying Project Report:
submitted to the Faculty of the
WORCESTER POLYTECHNIC INSTITUTE
in partial fulfillment of the requirements for the
Degree of Bachelor of Science
by

Henry Frishman, Olivia Hanson, Faith Kurtz, Anthony Marge, Manas Mehta

Date: December 14, 2018

Approved:

Professor Jennifer deWinter, Advisor

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Abstract

This report details the recommendations we developed for Kyoto VR's Augmented Reality Audio Guide application (exemplified in Figure 1) based on testing done on the current iteration of the prototype and research on other self-guided Audio Guides. We conducted audio tour research, surveys, User Experience (UX) Testing, and a Focus Group. From these, we formed conclusions to create user profiles, gauged interest in the product, and identified sticking points, i.e. aspects of the product that might inhibit its use or adoption.



Figure 1: Project Representation

From these conclusions, we formed recommendations that would improve Kyoto VR's application. Upon the request of our sponsor, we also formed conclusions about interest in the product and willingness to pay based on the testing and research we conducted. These recommendations will enable Kyoto VR to develop a better, more successful audio guide. Our recommendations numbered in order of priority are as follows:

1. Improve GPS reliability of the application
2. Product pricing
 - a. Free trial tour
3. Give the users the ability to control audio (and read it)
4. Add optional additional information feature
5. Offer customizable variations of the tour
6. Define clear directional language
7. Provide a prelude for the experience
8. Provide technology and logistic information
9. Provide the tour in other languages
10. Appeal to tourists in groups
11. Keep a consistent amount of humor throughout each tour

Ultimately, our research and testing suggest that Kyoto VR's application has a lot of potential and if Kyoto VR implements the aforementioned recommendations, we believe that it will be able to develop a successful product that attracts numerous users.

Acknowledgements

We would like to thank everyone who assisted in the development of our project. Without their help, our project would not have been possible.

First, we would like to thank our project sponsor, Mr. Atticus Sims from Kyoto VR, for providing us with the opportunity to aid in the development of his product. We greatly appreciate his constant involvement and guidance throughout the span of this project.

Next, we would like to thank Professor Jennifer deWinter, our on-site advisor, for her continued guidance and support, professionally and personally, throughout the length of this project. We are all incredibly grateful for her guidance on not only the development of our project and construction of our project report but also on how to function as an effective team and be aware of our strengths and weaknesses.

Yokai SOHO was our home and office for the past 7 weeks; we would like to thank Benoit Jacquet at Yokai SOHO for providing us with accommodations during our stay in Kyoto and for promptly helping us with any housing problems we encountered during our stay.

Professor John F. Zeugner' support and guidance during the preparation term for the project was crucial to our success. His guidance into the preliminary project development and Japanese culture prepared us well for our project and our stay here in Japan.

The Research and Instruction Librarians, Jessica O'Toole and Lori L. Steckervetz, were critical to our background research and APA citations and we would like to acknowledge their contribution to this project and its success.

Next, we would like to thank William D. Wallace and Vanessa Bumpus from the Worcester Historical Museum and the staff at the Worcester Art Museum for their help with our research into audio guides.

Professor Soussan Djamassbi's input on User Experience (UX) Testing proved incredibly helpful during the UX testing we conducted on Kyoto VR's prototype, which formed a significant and vital portion of our testing phase.

We would like to thank everyone who participated in our surveying, UX testing, and the focus group we conducted. Their participation and feedback was vital to the success of this project.

Finally, we would like to thank Worcester Polytechnic Institute for providing us with this amazing opportunity to grow professionally and explore a different side of the globe.

Executive Summary

Kyoto VR is a company based in Kyoto, Japan with a goal of making Kyoto more accessible to English speaking tourists and helping them realize the vast history and culture Kyoto has to offer by providing them with enriching experiences. The purpose of this project was to assist Kyoto VR in developing an Augmented Reality GPS Audio Guide application.

Methods

The background research conducted during the 7-week preparation term for this project involved looking into audio tour evaluation methods, similar projects, and existing audio guides. This research

assisted in the creation of the recommendations for Kyoto VR. Interviews and online research were also conducted to gather information on interviewing, surveying, and User Experience (UX) testing methods. We also looked into the nature of tourism in Kyoto to form an idea of the target market. Additionally, we looked into user profiles: find out what they are, how to use them, and how to construct them. The user profiles we eventually constructed using this research helped us efficiently analyze and represent our users' responses to the product. Our first week in Japan involved familiarizing ourselves with Kyoto VR's audio guide prototype, shortly after which we reworked our project outline and finalized it as shown below in Figure 2.

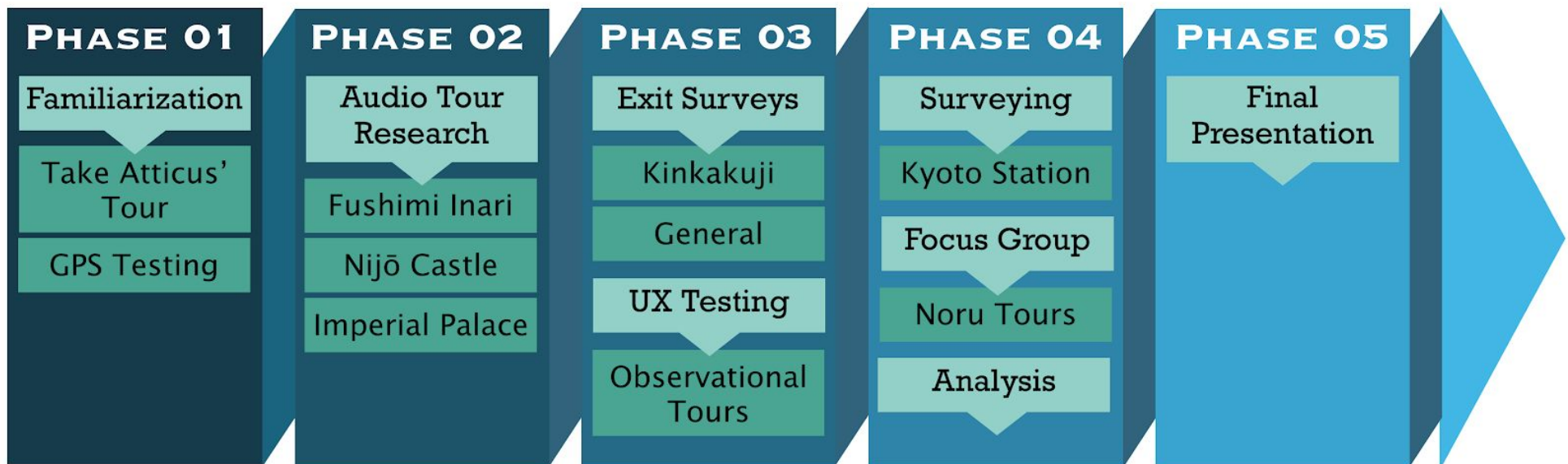


Figure 2: Project Outline

Phase 1

The first phase of our project involved testing the prototype ourselves, which is an audio tour of Kinkaku-ji, Kyoto's famous "Golden Pavilion." Its GPS capability gives the tour a hands-free aspect that most other audio tours do not have. The GPS locations, as shown in Figure 3, are placed along the path and triggered as the users approach them.



Figure 3: Map from Kinkaku-ji Prototype

Phase 2

The second phase included doing research on audio tours around Kyoto. We evaluated the audio guides for Fushimi Inari-Taisha shrine, Nijō Castle and the Kyoto Imperial Palace. Conclusions formed from the evaluation of these audio guides were used to suggest additional initial changes to the prototype and form recommendations for Kyoto VR.

Phase 3

Most of our testing was completed in phase three. The testing involved surveying tourists leaving major cultural sites in Kyoto to

gauge tourist interest in Kyoto VR's audio guide, their knowledge of and experience with audio guides, and what they are willing to pay for such a product.

Additionally, our testing involved User Experience (UX) testing. First, test users were pre-interviewed to gauge their initial interest in and knowledge of audio guides. The test users then took the prototype tour in Kinkaku-ji as we followed along with them and noted any glaring observations. The tour was followed by a post-interview and discussion to learn what the users thought of the application and how much they would be willing to pay for it.

Phase 4

Phase four involved performing surveying at Kyoto Station to gauge additional initial interest in the product and user willingness to pay. We also conducted a focus group with tourists in Kyoto to learn more about what features potential users would want Kyoto VR's product to have.

This phase also involved analysis of the raw data we collected from user experience testing and surveying. We also constructed user profiles. From our analysis, conclusions, and user profiles, we created recommendations for Kyoto VR.

Phase 5

In the fifth and final phase of our project, we compiled all of our recommendations and findings and presented them to Kyoto VR.

Findings

After analyzing our data, we came up with the following eleven recommendations for Kyoto VR:

1. Improve GPS reliability of the application
2. Product pricing
 - a. Free trial tour
3. Give the users the ability to control audio (and read it)
4. Add an optional additional information feature
5. Offer customizable variations of the tour
6. Define clear directional language
7. Provide a prelude for the experience
8. Provide technology and logistic information
9. Provide the tour in other languages
10. Appeal to tourists traveling in groups
11. Keep a consistent amount of humor throughout each tour

In this report, each recommendation is accompanied by the sticking points it addresses, each of the User Profiles' reactions to it and a sample method of implementing that recommendation.

Improve GPS reliability of the application

For a GPS enabled application such as this one, the GPS needs to be reliable and accurate. An unreliable GPS can greatly hinder the experience for a user. 15/20 of the test users experienced GPS issues such as having to move around to trigger an audio segment or missing an audio segment altogether. We suggest continuous GPS testing and alignment to ensure reliability.

Product Pricing

Based on the survey responses, we recommend pricing the product between 400 and 650 yen. The UX testing responses revealed that users are willing to pay a higher price of about 1150 yen for the

product, which implies that users see more value in the product after trying it. This finding leads to a sub-recommendation: Free Trial Tour.

Since the users are willing to pay a higher price for the product after using it, it would be beneficial for Kyoto VR to provide them with free trial tours then price the remaining application between 550 yen and 1150 yen. If the users would like to pay for the following tours individually, then charge 100 yen to 350 yen per tour.

Give the users the ability to control audio (and read it)

9/20 test users missed a piece of audio or expressed a desire to replay certain audio clips. To combat this issue, we suggest that Kyoto VR's audio guide have the ability to control and replay audio clips. We also suggest the app have a transcript of the audio for users who prefer to read information or to combat any audio issues.

Add an Optional Additional Information Feature

5/20 of our test users reported the tour did not have enough information, and 17/20 test users reported that they wanted to hear more about a specific topic. We suggest that Kyoto VR adds an "additional information" feature. The feature would offer the user more information at the end of audio clips. If they would like more information, they could tap the screen to learn more.

Offer Customizable Variations of the Tour

17/20 users mentioned at least one thing they wished to know more about after they took the tour. The range of these categories among different users varied. We suggest that Kyoto VR's product provide users with the choice to pick and choose specific categories they would like to hear about. These categories may include architecture, history, cultural significance, etc. Once selected by the user, the tour will have additional information pertaining to the selected categories added to the base tour.

Define Clear Directional Language

15/20 of our test users missed an audio trigger due to unclear directions at some point. We suggest that Kyoto VR's application provide a prelude that highlights clear directional language.

Provide a Prelude for the Entire Experience

The product acts under the assumption that users have some prior knowledge of the information being presented in the tour. However, most tourists are unfamiliar with the vast expanse of Japan's history and culture. Providing a prelude that talks about basic information pertaining to Shintoism, Buddhism, Japanese historical eras, etc. will equip the users with the knowledge they need to enjoy the tour and not feel lost with information about a topic they are unfamiliar with.

Provide Technology and Logistic Information

The application in its current form does not include an explanation of how it functions. From research into audio guides, a prelude into how the product works plays a significant role in its ease of use. Additionally, for someone who has limited days in Kyoto the hardest part is planning an itinerary. The presence of logistic information like the price of tickets and the cost and mode of transportation will prove to be a major selling point for Kyoto VR's product.

Provide the Tour in Other Languages

There are currently no plans to publish the product in any other language other than English. 75% of tourists in Kyoto are from Eastern Asia. We recommend that Kyoto VR translate their product to both Korean and Chinese.

Appeal to Tourists Travelling in Groups

Most people who travel to Kyoto are in groups and would like to experience everything in those groups. This was evident from 25/33 people we surveyed who were traveling with someone they know. The lack of an audio syncing feature limits interaction among these groups. In addition, 5/25 of people in groups were traveling in families, so content and features tailored specifically towards children will aid in the sale of the product.

Keep a Consistent Amount of Humor Throughout Each Tour

5/20 of our test users enjoyed the humor in the two audio segments of the tour. Our research revealed that many audio tours are boring and too informative. Having well spaced and consistent humor in the audio segments will be a major selling point for Kyoto VR's application. Most people do not buy audio guides because they are not entertaining enough. This was revealed by the fact that only 2/20 test users had downloaded a tourism application and only 13/33 had taken an audio tour beforehand. Including some humor in the tour will make the product more appealing to the general user.

Conclusion

The goal of our project was to improve Kyoto VR's prototype and subsequently help them develop a successful application. After conducting research and testing, we started building user profiles, identifying sticking points and determining what the users' interest and willingness to pay for the product. Analysis revealed trends within the data that helped us develop our recommendations. Our final recommendations and conclusions from quantified data helped us conclude that there is a lot of potential in Kyoto VR's product and nearly all of our users, regardless of whether they liked the prototype or not, expressed their desire to see an expanded and finalized version. We believe that if Kyoto VR implements the aforementioned recommendations, it will be able to develop a successful product that attracts numerous users.

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Introduction to Kyoto VR's AR Audio Guide

Touring a foreign country is difficult, and Japan is no exception. The language is difficult, it feels like nobody in the country over the age of 40 speaks English, and tourists have to rely on Google to get them everywhere. Tour guides can be a great alternative, but they tend to be expensive and restrictive. Touring applications are also a potential option, but sadly are far and few between when it comes to Japan.

Kyoto, Japan has universally been described as the “cultural center of Japan” for hundreds of years. As the 7th largest city in Japan, Kyoto boasts over 2000 temples and shrines, 3 palaces, a magnificent castle, and architecturally blends the old and modern within the city's buildings. From the Golden Pavilion to Kiyomizu-dera to Ryoan-ji, Kyoto has a lot of amazing and famous sites to see. For a tourist, this is can be intimidating. Where would one tourist begin? What's the best thing to see? What is the significance of each location? This is where Kyoto VR comes in.

Kyoto VR is a modern company based in Kyoto with a goal of documenting and preserving the culture and heritage of Kyoto and communicating the richness of the city to the world. The company is currently developing an augmented reality (AR) audio tour. Kyoto VR's audio tour is different from most audio tours. Normally an audio tour is user controlled by pushing a button or a code on an audio guide device corresponding to the user's location when they wish to hear

audio. Kyoto VR's product comes in the form of a smartphone application. By using the smartphone's built in GPS, Kyoto VR's tour automatically triggers each audio clip as the user approaches its intended location. This provides an exciting hands free experience for the users.

The finalized product will have content for all of the major tourist destinations within Kyoto, and will be narrated by Alex Kerr, a famous Japanologist. However, Kyoto VR's audio tour is still in its early phases. The beta currently has content for only Kinkaku-ji and is built on a different application's tourism platform.

For the past 8 weeks, we have been working on assisting with the creation of Kyoto VR's new GPS-based audio tour. Working closely with Atticus Sims, Kyoto VR's CEO, our team has been testing the beta of their tour, surveying tourists, and conducting research to form recommendations from our results. Our goal through all of this has been to improve Kyoto VR's prototype and subsequently to help them develop a successful application.

This report outlines first the user profiles we created, followed by the methods we conducted to create our recommendations, and finally our recommendations themselves. Following this, this report contains the conclusions we formed from the project and our suggestions for Kyoto VR's next steps.

User Profiles

A user profile is a hypothetical personality based on real people. User profiles can be an immensely helpful tool for understanding users' needs, and ensuring that business and product design decisions are aligned with these needs (Farino, 2013). They can also help define the target market.

We have created 6 profiles representing the trends we began to see among our test users based on the UX testing we conducted. We chose to create 6 profiles because our research showed that a user profile cannot represent the entire user base or a single user, it has to represent something in between (Vedenin, 2017). For this specific application, 6 profiles was that middle ground. Each profile represents a different type of user.

The method for creating these profiles was based on Alan Cooper's method of creating user personas, because his method relies on data gathered directly from users through interviews and surveys (Cooper, 2007). We also used Xtensio.com and UXPressia.com for information on creating the profiles and putting them into an effective format (How to create a user persona; Vedenin, 2017). After gathering user feedback through user experience testing, we identified 40 behavioral variables in 11 different categories. Next, we gave each test user a score for each variable, then used those scores to find trends between users. When significant trends between a group of users were found, that group was turned into a user profile.

Collectively, the 6 user profiles detailed in the following pages can help the developer to:

- Define who the target market is
- Understand what the target market users are looking for in the product
- Align product decisions with the users' needs
- Understand how users might react to changes to the app
- Understand the recommendations given in this report

As the product is further developed, changes can be measured against these profiles. For example, if a developer is considering adding an additional information feature, he or she could look at the profiles to determine how various sections of the potential target market would react to the change. Based on the "Enough Information" section of the profiles, it would be clear that profiles C, D, E, and F would be happy with this change, while profiles A and B would be indifferent. Additionally, if the developer was trying to specifically target profiles C and E, he or she would know to add information about cultural background, architecture, and historical stories based on what these profiles are looking for.

Figure 4 on the next page explains how the user profiles are formatted. On the pages following that are each of our 6 user profiles, Figures 5-10.

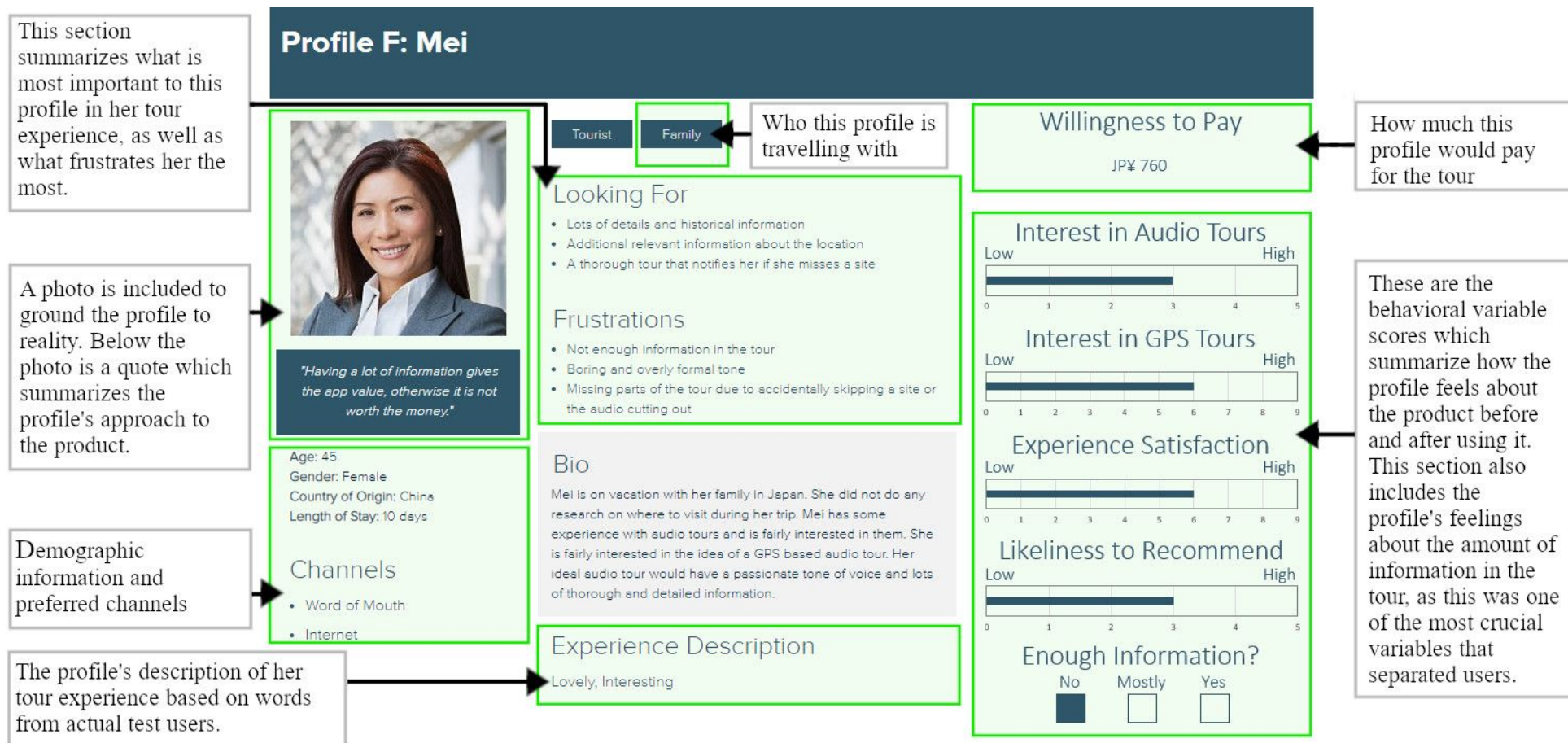


Figure 4: In-depth Explanation of a User Profile

Profile A: Amelia



"I want a tour that is brief, fast, fun, and humorous with information that I wouldn't have found otherwise."

Age: 38
Gender: Female
Country of Origin: Australia
Length of Stay: 6 - 17 days

Channels

- Internet
- Word of Mouth
- Guide Books

Tourist

Alone

Looking For

- Unique information that can't be found elsewhere
- Interesting stories with information about culture and architecture that she will remember later on
- Brief is best
- Ability to go at her own pace and rewind or skip audio as needed

Frustrations

- Too much talking
- Too many forgettable dates and facts

Bio

Amelia is on vacation by herself in Japan. She did a little bit of general research on places to visit during her trip. Amelia has very little experience with audio tours and is not super interested in them. However, she does like the idea of a GPS based audio tour. Her ideal audio tour would be brief and at a faster pace while also fun and humorous.

Experience Description

Fun, Interesting

Willingness to Pay

JP¥ 425

Interest in Audio Tours



Interest in GPS Tours



Experience Satisfaction



Likelihood to Recommend



Enough Information?

No ☐ Mostly ☐ Yes ☒

Figure 5: User Profile A

Profile B: Felix



"I just noticed that for the first time I was wandering around, listening and looking, and not looking down at my phone. Usually I'm frantically trying to read through the guide to figure out what I'm missing."

Age: 36

Gender: Male

Country of Origin: Belgium

Length of Stay: 10 days

Channels

- Word of Mouth
- Internet

Tourist

Friends

Looking For

- Hands free experience
- Lots of historical information
- Additional pictures in the app so that he can share his experience with others
- Flexibility to go at his own pace
- Relaxed and calming tone of voice

Frustrations

- Glitchy audio
- Poor sound quality

Bio

Felix is on vacation with some friends in Japan. He did not do any research on where to visit during his trip. Felix has little to no experience with audio tours but is very interested in them. He is also very interested in the idea of a GPS based audio tour. His ideal audio tour would have a gentle, relaxed tone of voice and lots of historic information.

Experience Description

Informative, Serene

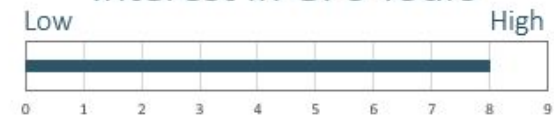
Willingness to Pay

JP¥ 435

Interest in Audio Tours



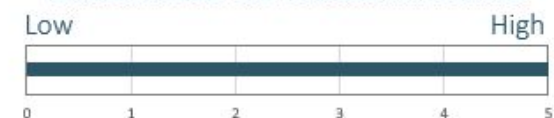
Interest in GPS Tours



Experience Satisfaction



Likelihood to Recommend



Enough Information?

No Mostly Yes

☐ ☐ ☒

Figure 6: User Profile B

Profile C: Manuel



"I like humor - not something boring with a lot of forgettable dates. I will remember the anecdotes"

Age: 25
Gender: Male
Country of Origin: Spain
Length of Stay: 6 - 30 days

Channels

- Word of Mouth
- Internet

Tourist

Family

Looking For

- Information that is relevant to what he's looking at
- Information about general history, cultural background, and architecture
- Humor and anecdotes

Frustrations

- Not all sites are mentioned

Bio

Manuel is on vacation with his family in Japan. He did some general research on where to visit during his trip. Manuel has little to no experience with audio tours and is only slightly interested in them. However, he is quite interested in the idea of a GPS based audio tour. His ideal audio tour would be brief and engaging and talk about history, cultural background and architecture.

Experience Description

Precise, Humorous, Short

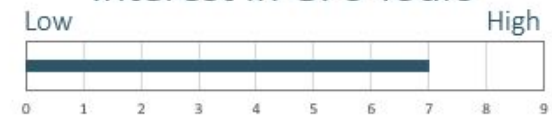
Willingness to Pay

JP¥ 420

Interest in Audio Tours



Interest in GPS Tours



Experience Satisfaction



Likelihood to Recommend



Enough Information?

No Mostly Yes

☐ ☒ ☐

Figure 7: User Profile C

Profile D: Rahul



"I am looking for a tour filled with stories and history"

Age: 35
Gender: Male
Country of Origin: India
Length of Stay: 14 days

Channels

- Internet

Tourist

Friends

Looking For

- Information relevant to what he's looking at
- The ability to set his own pace
- The option to listen to additional content
- An enthusiastic tone of voice

Frustrations

- Not enough information about the architecture and history of construction

Bio

Raul is on vacation with some friends in Japan. He did some research on what is worth seeing during his trip. Raul has some experience with audio tours and is quite interested in them. He is also quite interested in the idea of a GPS based audio tour. His ideal audio tour would have lots of information about architecture and talk about the people involved in the history of the site.

Experience Description

Peaceful, Cool

Willingness to Pay

JP¥ 340

Interest in Audio Tours



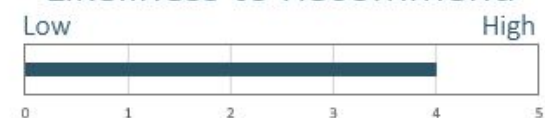
Interest in GPS Tours



Experience Satisfaction



Likelihood to Recommend



Enough Information?

No Mostly Yes

☐ ☒ ☐

Figure 8: User Profile D

Profile E: Sarah



"There is no substitute for a docent."

Age: 50
Gender: Female
Country of Origin: America
Length of Stay: 12 days

Channels

- Poster
- Word of Mouth

Tourist

Significant Other

Looking For

- Well timed audio
- Music to enhance the experience
- Interesting historical stories
- Ability to read instead of listen

Frustrations

- Not enough information
- Tours that lack an overarching narrative

Bio

Sarah is on vacation with her significant other in Japan. She did some general research on where to visit during her trip. Sarah has quite a lot of experience with audio tours and is fairly interested in them. She is also somewhat interested in the idea of a GPS based audio tour. Her ideal audio tour would have a more enthusiastic tone of voice and lots of information about history, architecture, and interesting stories about the site.

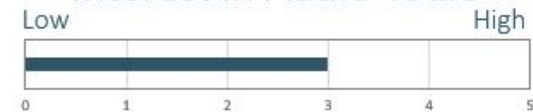
Experience Description

Boring, Poorly-timed

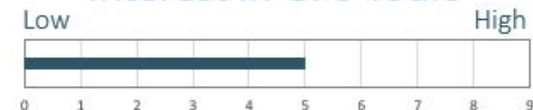
Willingness to Pay

JP¥ 250

Interest in Audio Tours



Interest in GPS Tours



Experience Satisfaction



Likelihood to Recommend



Enough Information?

No Mostly Yes

☒ ☐ ☐

Figure 9: User Profile E

Profile F: Mei



"Having a lot of information gives the app value, otherwise it is not worth the money."

Age: 45
Gender: Female
Country of Origin: China
Length of Stay: 10 days

Channels

- Word of Mouth
- Internet

Tourist

Family

Looking For

- Lots of details and historical information
- Additional relevant information about the location
- A thorough tour that notifies her if she misses a site

Frustrations

- Not enough information in the tour
- Boring and overly formal tone
- Missing parts of the tour due to accidentally skipping a site or the audio cutting out

Bio

Mei is on vacation with her family in Japan. She did not do any research on where to visit during her trip. Mei has some experience with audio tours and is fairly interested in them. She is fairly interested in the idea of a GPS based audio tour. Her ideal audio tour would have a passionate tone of voice and lots of thorough and detailed information.

Experience Description

Lovely, Interesting

Willingness to Pay

JP¥ 760

Interest in Audio Tours



Interest in GPS Tours



Experience Satisfaction



Likelihood to Recommend



Enough Information?

No Mostly Yes

☒ ☐ ☐

Figure 10: User Profile F

User Profile Comparison

The most important trend to notice from the user profiles is the relationship between whether or not a user thought there was enough information and how satisfied and likely to recommend the tour they were overall. In Figure 11 to the right, the direct relationship between these variables is clearly shown. Users who thought there was enough information were more likely to be satisfied with their experience and recommend the tour to others than users who thought there was not enough information. Based on this observation, we have made recommendations to add more information to the tour. These can be found in the recommendations section of this report.

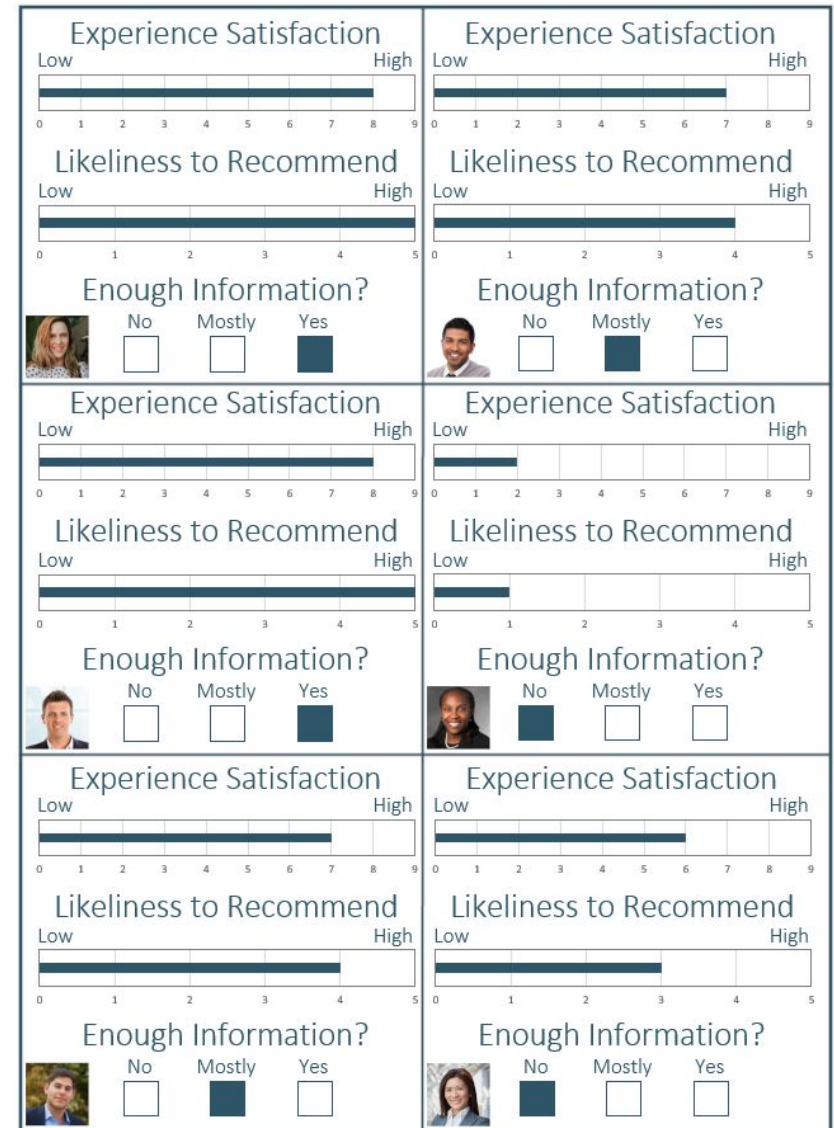


Figure 11: Profile Comparison

Testing to Build Recommendations

When we began work on this project, we were presented with the following problem statement:

“Kyoto VR is currently building an Augmented Reality Travel Platform that will enrich travelers' experience of destinations by providing on demand audio tours and immersive experiences. Without user experience testing and market research, the product may not be tailored to users’ needs, and therefore Kyoto VR may not have product users, make a profit, or accomplish their goal of sharing Kyoto’s history.”

In order to solve the aforementioned problem statement, we created a goal statement and some research questions attached to help accomplish that goal.

Our goal is to create a final report for Kyoto VR that can be used to develop their augmented reality audio guide application. This report provides data and conclusions regarding the following

1. Feedback on the product drawn from our background research and on-site fieldwork
2. Sticking points that would inhibit adoption
3. Users’ willingness to pay for the product
4. User Profiles representing the types of users we encounter in the field and their reactions to the product
5. Recommendations and possible product features for future implementation

The research questions listed below were answered by background research, testing and analysis or both

- How do we test/evaluate audio tours?
- How do we conduct a proper and successful survey
- How do we create user profiles?
- What do we perform user experience testing?
- What changes does Kyoto VR’s product need to make?
- What features need to be implemented into Kyoto VR’s audio guide?

In order to address these research questions, we developed our methodology which consisted of doing background research and fieldwork that involved:

- Exit Surveys
- User Experience (UX) testing
- Focus Group

In this section, we discuss these methods in depth and explain what we used them for.

Background Research

Our background research consisted of researching various papers and projects pertaining to the development and success of audio tours. In addition, we took other audio tours in Kyoto and Worcester to gauge what makes a good audio tour. We took three audio tours in Kyoto at:

1. Fushimi Inari
2. Nijo Castle
3. Imperial Palace.

We made sure to have multiple teammates test each audio tour and to keep track of everything they noticed, especially what they liked and disliked about each of the audio tours. The information we learned from our research and taking these audio tours greatly contributed to the forming of our recommendations. See Appendix B for a full write-up on the Worcester Art Museum audio tour and Appendix C for write-ups on the audio tours we took in Kyoto.

Surveys

We conducted surveys of people exiting Kinkaku-ji, Ryoan-ji, Ginkaku-ji, and Kyoto Station in order to figure out how people were finding out about various cultural sites and their thoughts on audio tours. From these surveys, we were able to gauge general interest in

the tour, determine how much users would be willing to pay for Kyoto VR's audio guide and build our recommendations. We structured these surveys as standardized interviews, meaning they were direct and that we clearly defined our questions to leave no room in their wording for any kind of alternative interpretation. We have highlighted a few key questions from our surveys that we feel encompass our survey:

- Why did you visit [location name here]?
- What did you enjoy about it?
- Is there anything you wish you had known before coming to [location name here]?
 - If yes, what do you wish you had known?
- How much research did you do about [location name here] before coming here?
- Have you taken an audio tour before?
- What would you want in an audio tour
- How interested would you be in a mobile app that offered creative audio guides of Kyoto's major heritage sites including [location name here]?
- How much would you be willing to pay for the product?

For the full list of questions asked during surveys at Kinkaku-ji, Ryoan-ji, and Ginkaku-ji, see Appendix E. For the full list of questions asked during surveys at Kyoto Station, see Appendix F. For the raw data, see Appendix H.

User Experience Testing

Many of our recommendations come from our user experience testing. User experience testing is used to identify problems with a product before time is wasted developing them. Additionally, user experience testing provides information on how satisfied users are with the product and what changes are necessary to improve their satisfaction (Veal, 2018). Our user experience testing came in the form of observations and analysis. We gathered test users at Kinkaku-ji, briefly surveyed them to gather a few demographic questions, and then observed them as they took the prototype of Kyoto VR's audio guide. We took them to tea afterward and interviewed them about their

experience with the product, noting what they liked and disliked, and what they would expect to pay. For our full user experience testing methodology, see Appendix D. For the raw data, see Appendix H.

Focus Group

We also conducted a focus group with two people after they took a Noru bike tour of Kyoto to gather more data on what people expect to see in Kyoto VR's audio guide

METHOD MATRIX						
	RECOMMENDATIONS	IDEAS FOR FUTURE IMPLEMENTATION	USER PROFILES	STICKING POINTS	WILLINGNESS TO PAY	INTEREST IN PRODUCT
FAMILIARIZATION WITH PRODUCT	X	X		X		
RESEARCHING OTHER AUDIO TOURS	X	X		X		
KINKAKUJI EXIT SURVEYS	X	X		X	X	X
GENERAL EXIT SURVEYS	X	X		X	X	X
OBSERVATIONAL TOURS (UX TESTING)	X	X	X	X	X	X
KYOTO STATION SURVEY					X	X
NORU FOCUS GROUP	X	X		X		X

Figure 12: Method Matrix

The matrix in Figure 12 above highlights which methods formed which deliverables within this report. The left-hand column has our list of methods, while the top row highlights our deliverables. A darker green cell with an “X” means the information we gathered from that method helped us create the connected deliverable.

Our data from familiarization with the product was used to come up with preliminary recommendations, ideas for future implementations, and sticking points. Our background research and research on other audio tours were also used to come up with recommendations, ideas for future implementations, and sticking points.

Our Kinkaku-ji and general exit surveys were used to come up with recommendations, ideas for future implementations, sticking points, willingness to pay, and interest in the product. Our user experience testing was used to come up with recommendations, ideas for future implementations, sticking points, user profiles, willingness to pay, and interest in the product.

Our Kyoto Station survey was used to come up with our willingness to pay data and interest in product data, found in our additional considerations section.

Our Noru focus group was used in our recommendations, ideas for future implementation, sticking points, and interest in the product.

What the Product Does Well

Before we get into the recommendations, we want to talk about what the prototype did well and aspects of it that should not be changed. There are many aspects of the product that successfully capture what the experience is trying to provide. Much of what we show here is backed up by either our research into what goes into the creation of a good audio guide or by our test users themselves.

The Experience:

Out of all of our users, 16/20 said they would recommend this product to other people and that they were satisfied with their experience. Additionally, the fact that the tour guide is hands-free is one of the best features of this audio guide. Some of our UX testers said that it was a selling point in their eyes and that it gave value to the guide. On multiple occasions, our testers would turn to each other after the first audio segment triggered and either say “it’s cool” or give a thumbs up to the other group members. One of our users remarked after the tour:

“I just noticed that for the first time I was wondering around, listening and looking, and not looking down at my phone. Usually [I’m] frantically trying to read through the guide to figure out what I’m missing.”

Audio:

The tone of narration in the audio was almost universally enjoyed by our test users. 20/20 of our users said the narration was clear and audible, while 18/20 of our test users enjoyed both the pacing and tone. One user even went as far as saying:

“Narrator's voice is perfect – relaxed and calming, but with right amount of well pitched humor.”

The Content:

18/20 of our test users reported that they enjoyed the content of the tour, while 15/20 felt the tour had enough information. Additionally, in our time researching other audio tours, we found almost all of them to be consistently narrated boringly and in monotone. They tended to drag on and lose our attention. In its current form, Kyoto VR’s audio guide is precise and straight to the point.

Within the prototype, we often found that users thoroughly enjoyed the anecdotes. Many went as far to say it was one of the things they enjoyed the most, often remembering specifically the fun fact about the carp, its transformation into a dragon, and its significance within Japanese culture.

The App:

Having the option to use the built in phone speaker (despite being hidden in a menu) is definitely a good idea. Many of our twenty test users did not have earbuds with them, and including this option makes the app more accessible to users who download it on the go.

Having the map be the default for the app is a great feature that many users enjoyed because they could look and see where they are going. The map also serves as a visual reminder of the locations of the upcoming audio segments.

Kinkaku-ji Specific:

Test users reported that they enjoyed many observations the tour made within Kinkaku-ji. Specifically, users pointed out they enjoyed the following pieces of information:

- The viewing alcove of the Golden Pavilion where you can see the 3D painting. One of our users said “I'd love to tell people about the 3D painting”
- The final overlook of Kinkaku-ji
- Places to take photos

- The phoenix on top of the pavilion and the anecdote about the monk that burned down Kinkaku-Ji. One of our users said “It gave an experience”
- The carp to the left of the path just before the path takes a right into the woods.
- The dragon waterfall. To paraphrase multiple test users, “it was interesting because you could not tell what it was just by looking at it”

Users often enjoyed that the narration used clear positioning and guided the viewer's eyes to these features within Kinkaku-ji, explaining them along the way. The users enjoyed that the narrator pointed these out specifically because they felt this information was special and they most likely would not have learned it without this audio guide.



Figure 13: User Experience Testing Experience Words

Figure 13 represents the responses from our test users when asked to describe their experience at Kinkaku-ji in 3 words. In the image, each word's size represents the commonality of it being answered. As is visible, tourists had an overall more positive experience when they used the product.

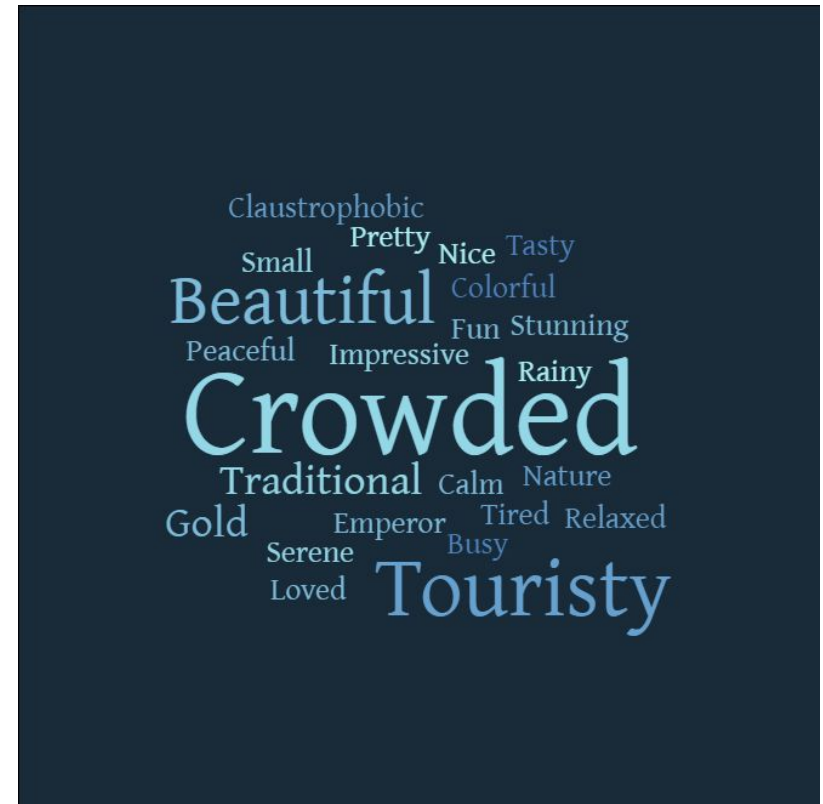


Figure 14: Survey Response Experience Words

Figure 14 above represents the responses to the request on our exit surveys that the users describe Kinkaku-ji in 3 words. These responses clearly contrast the ones from when we asked our test users the same thing, and show that tourists often have negative experiences within Kinkaku-ji. In the following section, we discuss positive aspects of the product, which we believe account for the difference between the two groups of responses.

Recommendations for the Development Process

This section shows our recommendations their accompanying information. This section contains our 11 large recommendations. The recommendations section is immediately followed by the Further Considerations section, which contains 7 smaller recommendations that were not large enough to put into a full recommendation. Our 11 recommendations are as follows, ordered from most important to least:

1. Improve GPS reliability of the application
2. Product pricing
 - a. Free trial tour
3. Give the users the ability to control audio (and read it)
4. Add optional additional information feature
5. Offer customizable variations of the tour
6. Define clear directional language
7. Provide a prelude for the entire experience
8. Provide technology and logistic information
9. Provide the tour in other languages
10. Appeal to tourists traveling in groups
11. Keep a consistent amount of humor throughout each tour

Figure 15 on the following page shows the format that is used for each of the 11 large recommendations. Each recommendation

contains a brief description of it, a section on how each user profile feels about the recommendation, and a small analysis of why each profile feels the way they do. In addition to each recommendation, there are accompanying sticking points and our suggested implementation of the recommendation. **Sticking points** are things we found that may inhibit the user or success of the product. Each sticking point has a section that explains the sticking point in detail and highlights the supporting data.

The recommendations in this section were built using our background research, surveys, and user experience testing. From the user experience testing, we were able to build user profiles. The profiles, in turn, assisted in the creation of our recommendations. Additionally, we built our suggested implementations of each recommendation from our own experiences and our test user's feedback. We chose these specific 11 recommendations because our test users all responded either positively or neutrally to each of them.

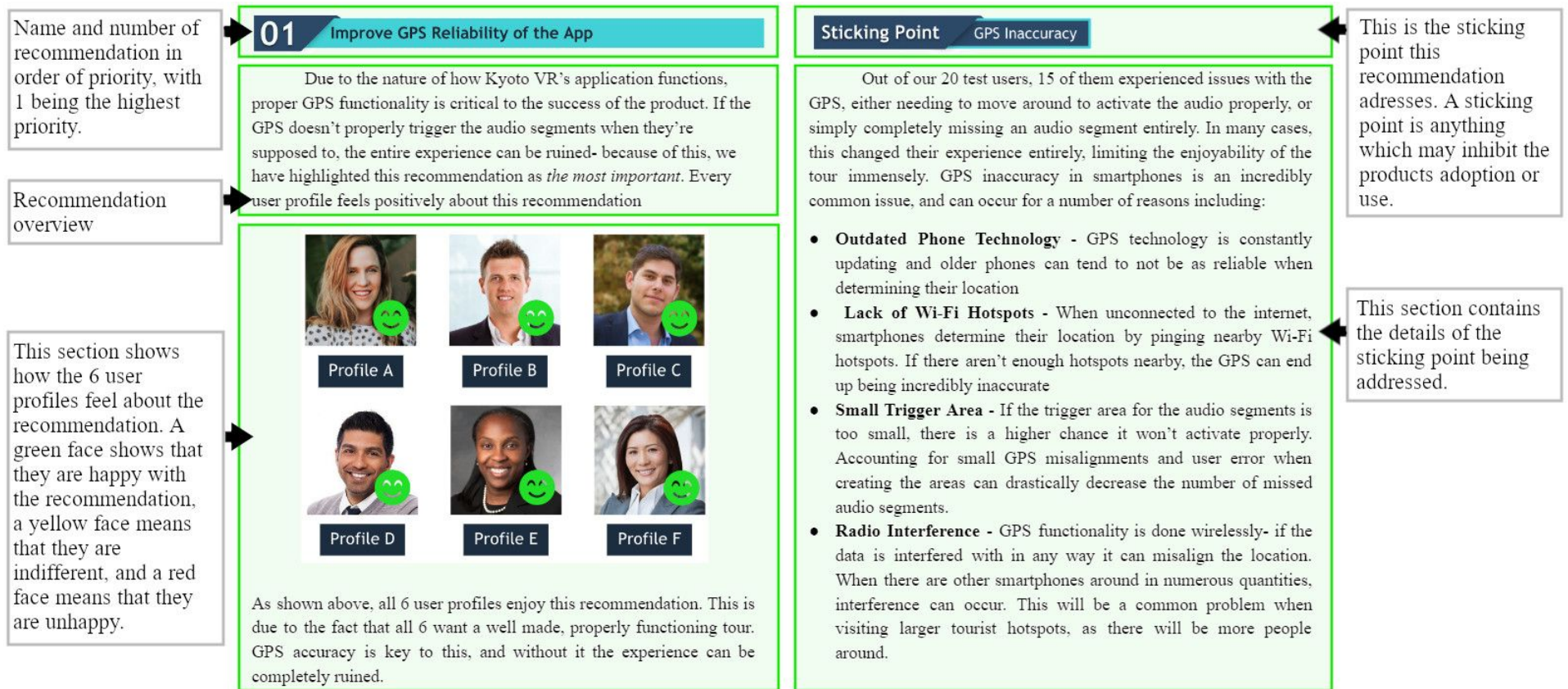


Figure 15: Recommendation Format

01 Improve GPS Reliability of the Application

Due to the nature of how Kyoto VR's application functions, proper GPS functionality is critical to the success of the product. If the GPS does not properly trigger the audio segments when they're supposed to, the experience can be negatively impacted. Because of this, we have highlighted this recommendation as *the most important*.

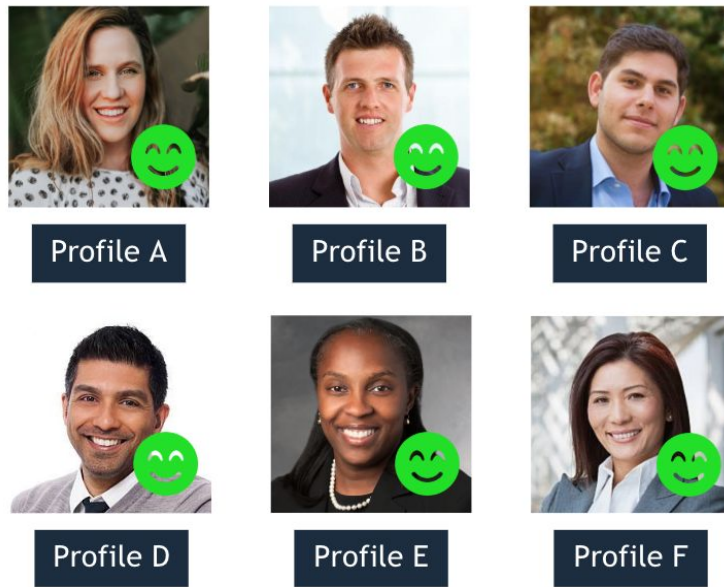


Figure 16: User Profile Reactions to Recommendation 1

As shown in Figure 16, all 6 user profiles enjoy this recommendation. This is because all 6 want a well made, properly functioning tour. GPS accuracy is key to this and without it, the experience can be negatively impacted.

Sticking Point GPS Inaccuracy

15/20 of the users experienced issues with the GPS by either needing to move around to activate the audio properly, or missing an audio segment. In many cases, this changed their experience entirely, limiting the enjoyability of the tour immensely. GPS inaccuracy in smartphones is an incredibly common issue and can occur for a number of reasons including:

- **Outdated Phone Technology** – GPS technology is constantly updating and older phones tend to not be as reliable when determining their location
- **Lack of Wi-Fi Hotspots** – When unconnected to the internet, smartphones determine their location by pinging nearby Wi-Fi hotspots. If there are not enough hotspots nearby, the GPS can end up being incredibly inaccurate
- **Small Trigger Area** – If the trigger area for the audio segments is too small, there is a higher chance the audio segment will not activate properly. Accounting for small GPS misalignments and user error when creating the areas can drastically decrease the number of missed audio segments.
- **Radio Interference** – GPS functionality is done wirelessly. Radio interference can misalign the GPS location. When there are other smartphones around in numerous quantities, interference can occur. This will be a common problem when visiting larger tourist hotspots, as there will be more people around.

02 Product Pricing

From our user experience testing and surveying, we suggest the price for Kyoto VR's audio guide should be between 400 and 650 yen, with 400 yen being the 25th percentile and 650 yen being the median of our pricing data. If Kyoto VR sets the price of their audio guide within this range, a majority of the market would think that the product is reasonably priced.



Figure 17: User Profile Reactions to Recommendation 2

As shown in Figure 17, profiles A, B, C, F are pleased with this recommendation while profiles D and E are unhappy with it. Profiles D and E are unhappy with it because they feel that the product is not worth that much money. They believe it is worth 340 yen and 250 yen respectively.

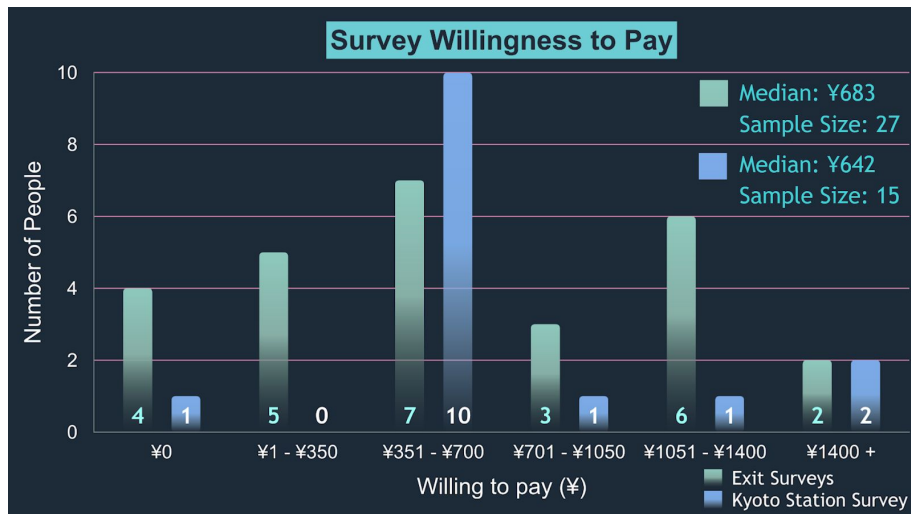


Figure 18: Survey Willingness to Pay

Based on the survey data in Figure 18, it is clear that most people would be willing to pay between 350 and 700 yen for Kyoto VR's audio guide. The median price is around 650 yen.

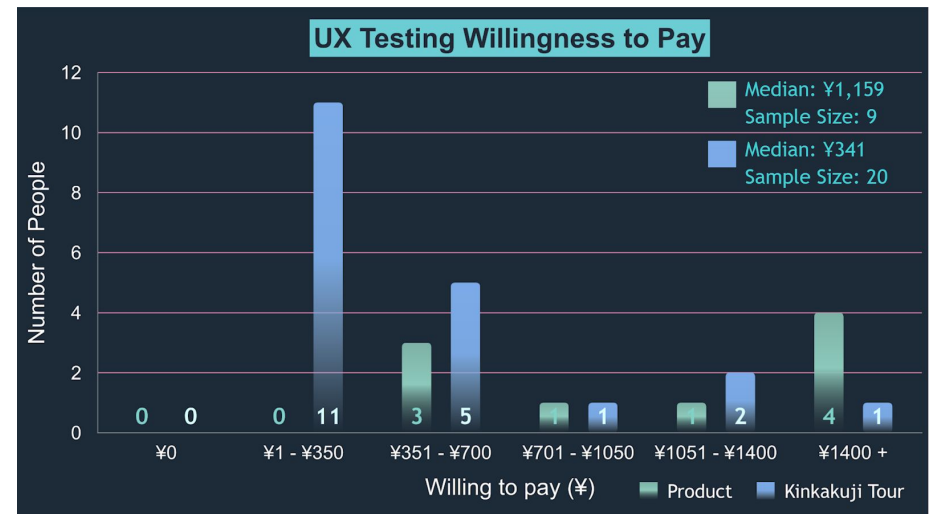


Figure 19: UX Testing Willingness to Pay

Looking at Figure 19, the median price that the test users would be willing to pay is 1150 yen, much higher than the people that were surveyed. From this, we can conclude that people are willing to pay more for the product once they have tried it. See Appendix G for a table of the willingness to pay data.

Sub Recommendation Free Trial Tour

Our sub-recommendation is to allow users to take the first one or two tours for free, then have them pay for the rest of the tours. Experience with the product helps people realize its value. If Kyoto VR implements this free trial option, our recommended price for the product is 550 to 1150 yen, with the former being the 25th percentile and the latter being the median. This is a broad range because we were only able to sample 9 of our test users regarding this information. If Kyoto VR decides to make people pay for each tour individually after the free trial instead, we recommend that each tour be priced at 350 yen. Although 341 yen is the median price, many test users said they would only be willing to pay 100 yen for each individual tour so more research would be required before choosing an exact price point.

If the app is free and users pay for each individual tour, it is also recommended that a discount is offered if users buy multiple tours at once. The size of the discount should depend on both how many tour locations are offered in the product and the average number of tour locations that users visit.

03

Give the Users the Ability to Control Audio (And Read It)

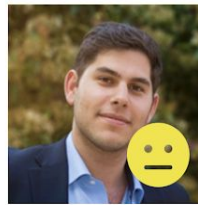
During testing, we found that many many users wished they could go back and replay audio. This included not only directly at the location of said audio, but also afterward when they were either a different spot or even outside of Kinkakuji.



Profile A



Profile B



Profile C



Profile D



Profile E



Profile F

Figure 20: User Profile Reactions to Recommendation 3

As shown in Figure 20, Profiles A, B, D, E, and F all feel very positively about this recommendation. They felt as though not being able to control the audio restricted their experience. B and F specifically are not primarily English speakers, and therefore greatly

appreciate being able to repeat and read the audio. Profile C feels indifferent about this recommendation, as they did not have any problems with not hearing audio.

Sticking Point

Product Limits Human Interaction

Due to the necessity of headphones and a lack of a feature that syncs up audio with other devices, Kyoto VR's audio tour heavily limits interactions between multiple users. Of the 15 users that we tested in groups, each one of them either separated from each other or talked to each other, drawing themselves away from the audio. Limiting interaction between users can be a complete deal breaker, especially when parents are touring with their children.

Sticking Point

Users Can Miss Information in Audio

Restricting control of the audio can force the user to choose between hearing the audio in its full, or diverting their attention to where it's needed elsewhere. Issues such as:

- getting a phone call in the middle of an audio segment;
- wanting to talk to somebody; and
- getting distracted or lost.

When users miss a piece of the audio, it can hinder their experience. Often, when a user does not hear something they are so concerned with what they missed they tend to ignore the rest of the audio. In our testing, 9/20 of the users missed some piece of audio.

Suggested Implementation Audio Control

Giving the user the ability to control the audio as they hear it will allow for an easier time understanding the content, as they do not have to worry that they missed any audio and cannot re-listen to it. Because of this, the first feature we suggest is a simple audio control bar. This would include:

- Pause/Play
- Stop
- Backtrack/Fast Forward the audio 10 seconds
- Backtrack/Fast Forward the audio 30 seconds
- An audio slider

Suggested Implementation Reading Audio

Many test users were concerned about missing an audio segment, wanted the option to re-listen to the audio tracks later, or wanted the ability to read the content directly. The second feature we suggest is to give the user the ability to observe a list of all audio tracks and tap any track to listen to or read it. When accessing this list, the app allows the user to see which audio clips they have listened to, in case they missed one.

The implementation of these recommendations is shown in Figure 21 below. The photo on the left represents the implementation of an audio control bar, and the photo on the right represents a visualization of a list of the audio segments.

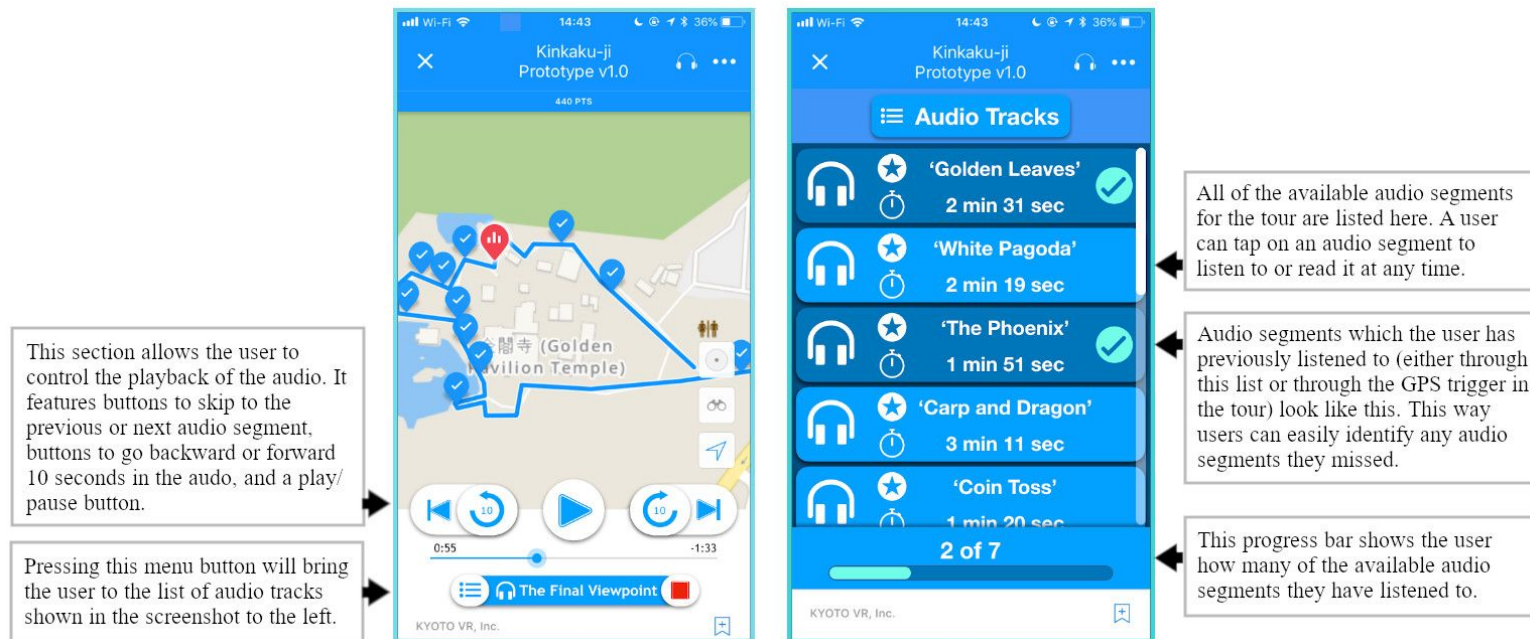


Figure 21: Suggested Implementation for Recommendation 3

04 Add Optional Additional Information Feature

Many of our UX testers stated that they would often wish to hear more about a topic during the audio tour. We recommend having a way for users to opt into additional audio locations for the tour or listen to additional audio segments in the app. For example, at the end of an audio segment, say “For more information, press the ‘play more’ button on your screen”. Additionally, Kyoto VR could also include optional additional information by displaying extra text on the screen.

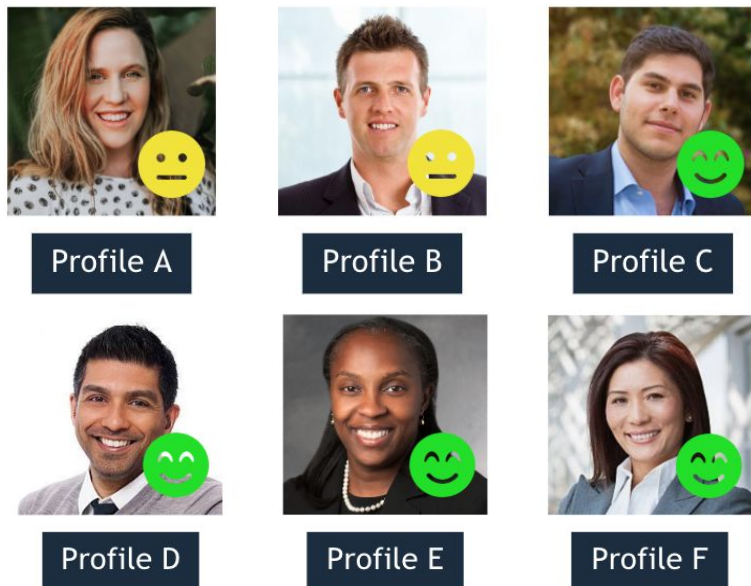


Figure 22: User Profile Reactions to Recommendation 4

As shown in Figure 22, profiles C, D, E, and F all enjoy this recommendation, as they felt at some points in the tour there was something they wanted to hear more about. Profiles A and B are

indifferent, as they feel that there were not points that they felt not enough information was given.

Sticking Point Lack of Information

A consistent comment we received in our UX Testing was that there was not enough information about something on the tour. In order to create a positive experience for users, it is important that they are given the option of hearing more about what they are interested in. The issue is that they might not know they want to learn about something until after it is specifically mentioned. When we asked our test users whether they felt there was enough information on the tour, only 15/20 responded there was. Yet when we presented them with the follow-up question of if there was anything they would have liked to hear more about, 17/20 came to the conclusion that there was something they would have wished to learn more information about.

Suggested Implementation Additional Info

Because users consistently wanted to hear more about an individual aspect of the audio tour, adding an optional additional information feature could be a great addition to the product. A simple but effective way of implementing this recommendation is to, **after specific audio clips, say “If you would like more information on this, tap the screen.” Proceed to have a pop-up on the screen (concept art shown on the right in Figure 23) that allows the user to access the additional information.** If the user does not wish to listen to the extra audio clip, the pop-up will disappear as the user moves toward the next site, allowing the user to ignore it and keep the phone in their pocket to not hinder their experience.

Note: If this is implemented alongside the suggested implementation of Offer Customizable Variations of the Tour, we suggest to offer only additional information on topics the user *did not* choose they want to hear about. All of the information the user chose they wanted to hear about should already be narrated.

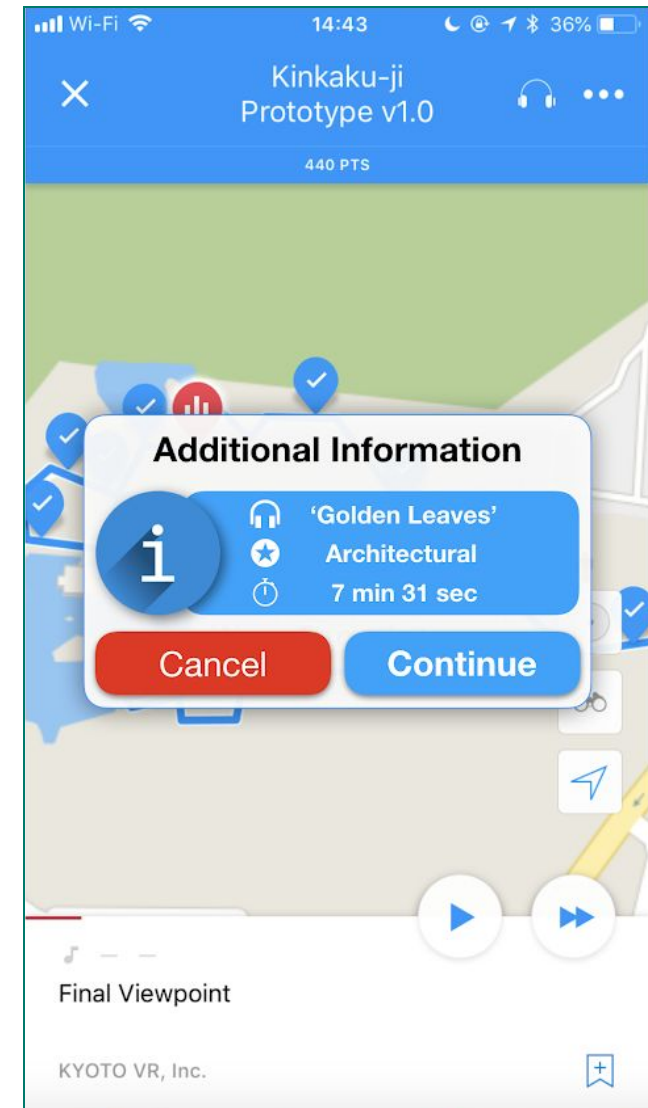


Figure 23: Suggested Implementation for Recommendation 4

05 Offer Customizable Variations of the Tour

In order to increase the desirability of the tour among more people, we recommend providing the ability for users to tailor the tour to their preferences by allowing users to customize the tour with optional additional information packages. Offering this method of customization:

- Would be a great way to expand the product's potential audience
- Gives the opportunity to address both different ages and different nationalities
- Increases the likelihood of their satisfaction with the product by giving the user the option to choose what they want to hear
- Could also increase the chances of groups using the product, as each group member gets to hear what they want to hear about rather than everybody being forced to learn the same thing.

By providing this feature, the product will become appealing to many more users by shaping the experience to their desires. It provides users with the feeling that they get to choose how they want to take their tour. This also almost guarantees that the user will learn something they would not normally have from just reading the signs at the tourist destination. This feature allows them to go beyond the basic information and common knowledge about where they are.

Sticking Point Different Users Want Different Versions of the Tour

Appealing to everybody's different interest will be critical to the success of the product, especially if this is meant to be equivalent to the standard tour guide of whom a user could ask questions. In our user experience testing, 17/20 of our testers said there was something in the tour they wished to hear about but did not hear in the tour. These desires varied, from architecture to history to anecdotes.

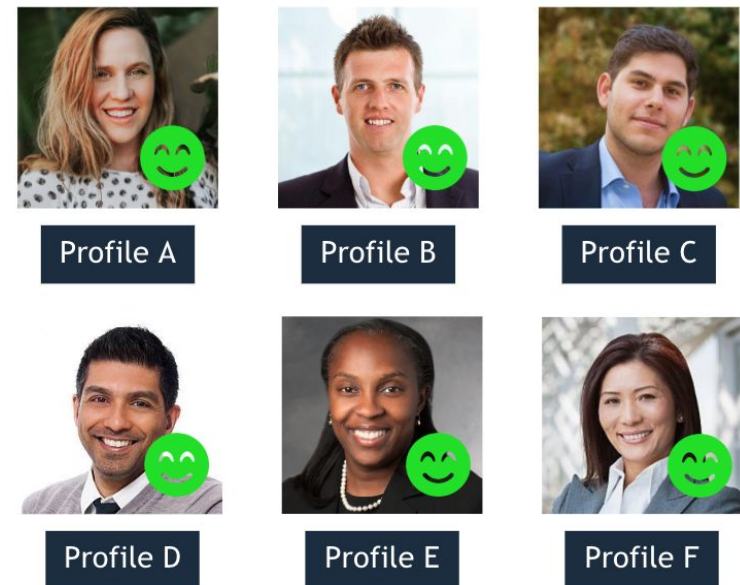


Figure 24: User Profile Reactions to Recommendation 5

As shown in Figure 24, all 6 user profiles like this recommendation. This is because that it allows each user to mold the tour to their liking, taking in more information about what they are curious about.

Suggested Implementation Variations of Tour

For this recommendation, we suggest setting up the tour audio like puzzle pieces (see Figure 25). This would entail asking the user when they first download the app to check off from a list things they want to hear about. These would include the following topics:

- History
- Architecture
- Modern Day Significance
- Cultural Background
- Anecdotes

From there, as the user goes on the tour, it will have specific additional audio pertaining to what the user has checked off. This audio will come after each of the base tour's audio segments (where applicable).

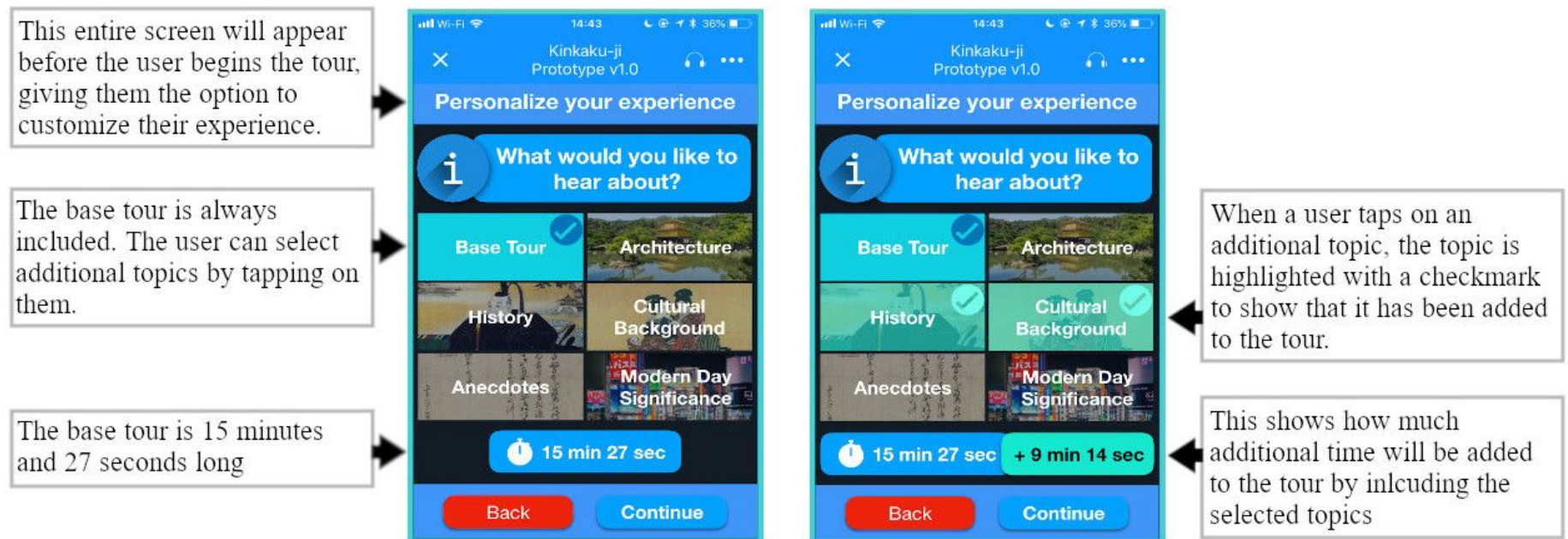


Figure 25: Suggested Implementation for Recommendation 5

06 Define Clear Directional Language

Our research consistently indicated that having some sort of system for making sure all directions on an audio tour are clear is key to the enjoyment of the user. Because of this, we recommend that Kyoto VR's product *Defines Clear Directional Language* when the user begins the tour. **At the beginning of the experience, stating “When I refer to your right, I mean the direction to your right when facing forward on the path” will go a long way in bridging the gap of communication between the narrator and user.** In addition, including the use of physical reference points to guide the users will help with pointing out a clear direction of where the product is guiding the tourists. Including physical references in order to both guide the users and assure them, making sure they are going the correct way could greatly improve Kyoto VR's guide. This recommendation will also appeal greatly to the older age group, as they tend to have trouble with user interfaces and sometimes navigation.

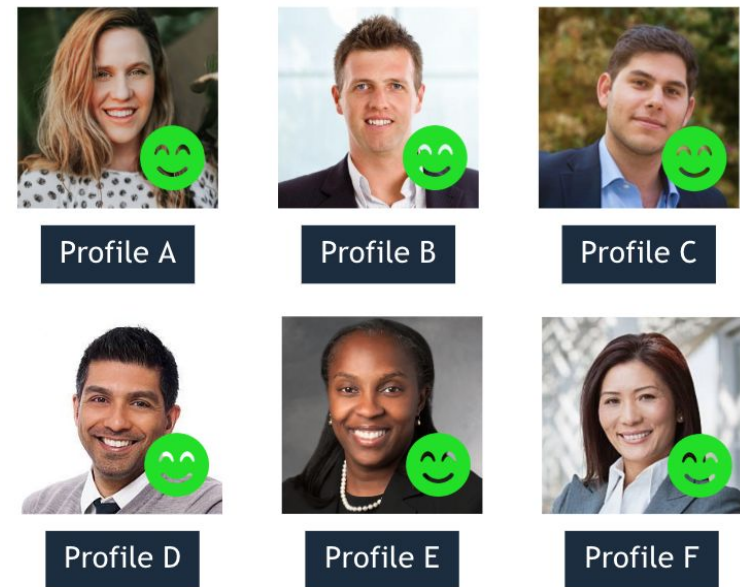


Figure 26: User Profile Reactions to Recommendation 6

As shown in Figure 26, all of the profiles would be pleased with this recommendation. This is because their experience will be better if they understand all of the directions given to them throughout the tour. It would ensure that they go to the correct locations and help them make it through the site without getting lost and missing audio segments.

Sticking Point

Unclear Directions

In our user experience testing, 9/20 of our users missed the first point alone due to uncertainty with the directions that were provided. Additionally, the following paragraphs are directly taken from our background research and highlight the importance of clear directions:

“It’s imperative to have clear directions, using both audio and visual elements(text directions, maps, signs, etc) (Wissman, 2013, p. 597-598). Helping travelers navigate not only the sites of interest but also the paths between is crucial to having an effective guide (Wissman, 2013, p. 598).”

“A simple but efficient method to increase the effectiveness of the tour’s directions is to use reference points. Reference points are physical objects that the audio guide can use to help orient the user’s location. Reference points reduce frustration for the tourist by providing easy navigation. With the inclusion of reference points, tourists have a way to get from point to point within the tour and a method to verify that they are at the correct location. (Luga et al., 2016, Conclusions and Recommendations, p. 49-50, Wallace, W. (2018, September 15). Personal Interview)”

“For older audiences, it is important for the tour to be easily usable and be at least reminiscent of a guide-led tour. This means including a lot of direction for the tour and using land markers or even permanent

signage, directing you to the next area (Luga et al., 2016, Background, p.14).”

Suggested Implementation

Directional Prelude

A directional prelude could be a very simple set of instructions outlining how the narrator will be speaking for the rest of the tour. Here are some suggestions for directional instructions:

- When I say “look to your right” or “look to your left”, I mean to the left or the right when facing the direction of the path
- Please pay close attention to the audio; at the end of some segments I may have instructions as to where I would like you to go next
- Please note that I will often reference and try to guide your eyes towards certain features of the locations this guide will bring you. Please, do not feel rushed by this; I will always give you very clear instructions and extra time to find what I have asked you to look for

Note: This implementation works well in tandem with [Suggested Implementation for Audio Control](#). Giving users the ability to replay audio will help relieve stress when it comes to navigational instructions

07 Provide a Prelude for the Experience

Due to the foreignness of the culture and customs of Japan, many tourists from outside of Asia are not aware of the significance of many common religious and historical things in the country. Giving a brief prelude outlining basic knowledge of Japan that people need to know before taking these tours will enable users to fully understand what they are seeing while allowing narration to continue without having to constantly repeat information about significance. This prelude could include basic information about:

- Shintoism and shrines
- Buddhism and temples
- The different historical eras of Japan

In addition, discussing how long each individual location will take to go through the tour and navigate to could greatly benefit the user, as it would allow them to better schedule their day and decide which tours they would like to take.

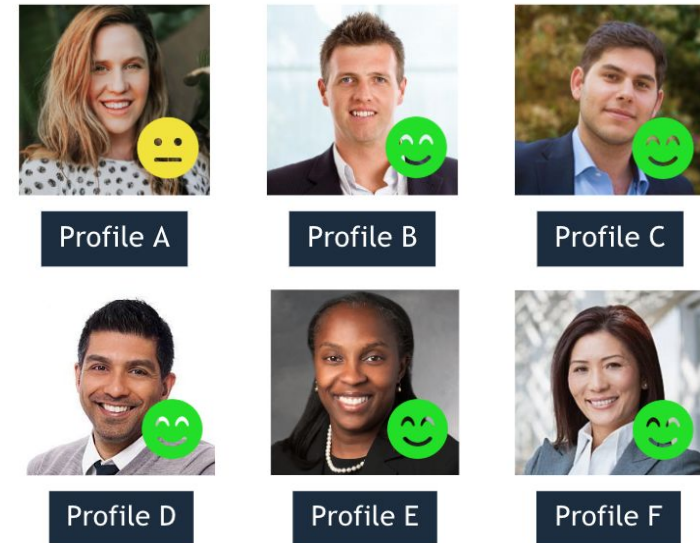


Figure 27: User Profile Reactions to Recommendation 7

As shown in Figure 27, profile A would be indifferent to this recommendation while profiles B, C, D, E, and F would be pleased with this recommendation. This is due to most of the profiles wanting more information on cultural background or history. Having the option for a prelude that includes those types of information would make most of the profiles happy.

Sticking Point

The Tour Acts Under an Assumption of Knowledge

Nearly every major tourist hotspot in Kyoto has some sort of historical or religious significance. Without even a basic knowledge of Shintoism, Buddhism, and some of the historical eras of Japan, there will need to be a constant explanation of the significance of much of what is seen on the tours. The following quote, taken from our background research, highlights the necessity of not assuming the user's knowledge.

“While self-guided tours around a site allow tourists more freedom, there is also the chance of misinformation or misinterpretation of the presented information, which could be caused by unclear signage or complex wording. The writers of the tour material have to realize that not every tourist will have the same educational background or understanding of the sites” (Luga et al., 2016, Background, p.12).

Suggested Implementation Cultural Prelude

When users first download the app, prompt them with a message explaining that there are a few things they need to know to fully enjoy their experience (see Figure 28). Provide them with the option of hearing an introductory audio. This introductory audio should cover the basics of what they will need to know before going to the specific sites the tour will bring them to. This recommendation will require an immense amount of specificity and time to write exactly what needs to be told. The following is an example list of potential prelude information:

- Shintoism
- Buddhism
- How the two religions intersections
- How to determine the difference between a shrine and temple
- A brief overview of the different time periods in Japan the destinations relate to
- Key historical figures that help tell the story of the destinations

A *lot* of information exists within each of these categories, and our expertise does not extend far enough to help Kyoto VR with the content of this prelude. The best way to test whether or not the prelude content they have written is enough is to have a test user take the tour after hearing the specific prelude to their locations and ask them after if the prelude provided enough information for them to understand the tour.

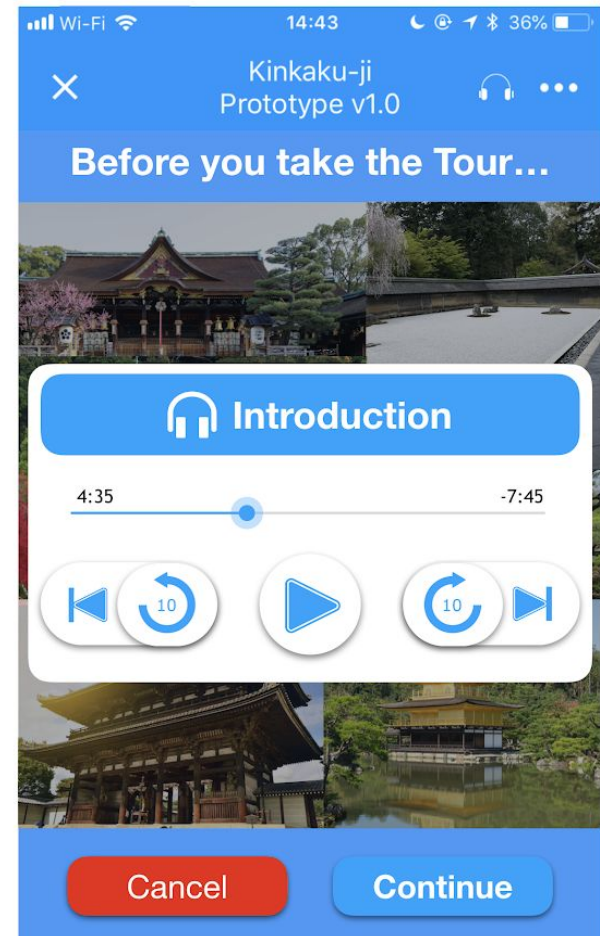


Figure 28: Suggested Implementation for Recommendation 7

08 Provide Technology and Logistic Information

The goal of this product is to provide an easy experience of traveling through Kyoto while learning a lot about its history and culture. We recommend that Kyoto VR provide within their application:

- Quick tips on how to use the application and its features
- The selection of where the user would like to go
- Information on the tour including the time it will take, predicted price, and how to Navigate from site to site



Profile A



Profile B



Profile C



Profile D



Profile E



Profile F

Figure 29: User Profile Reactions to Recommendation 8

As shown in Figure 29, profiles A, B, D, and F would be pleased with this recommendation because they are not fully confident in their navigation abilities. Profiles C and E, however, are indifferent to this recommendation because they have no issues navigating from site to site.

Sticking Point

New Technology Can be Difficult

It can be difficult to learn how to use a new application; many people take lots of time to get to know the ins and outs of their technology. This application will most likely be used only when they need it to begin touring. Because of this, giving a brief on-screen tutorial on how to use the application could greatly ease the use of it.

Sticking Point

Tourists Need to Know Details of a Multi-Destination Tour

Navigating Kyoto is not easy. In addition, tourists will most likely not know how much each location will cost to get in. Providing the solutions to these, in addition to a prediction of how long the tour will take, will provide incredibly helpful information to the user. Below is a highlighted text from our researching highlighting the importance of telling the user how long the tour will take:

“It is important for a tourist to know the length of the tour before they take it. The length of the tour has a large impact on both what the tourist learns and whether they choose to take the tour in the first place (Mann & Tung, 2015, Section 7, Huddleson 2017).”

Suggested Implementation Logistics Information

Before beginning the experience, allow for users to select which locations they would like to visit. From there provide:

- How long the experience should take depending destinations
- How much the user should expect to pay (entrance fees, transportation, etc)
- Suggested method of transportation for the user (Pref)

The suggested implementation for this feature is shown in Figure 30 below.

Information like this will need to be continually updated. We suggest Kyoto VR updates it before and after major tourism rushes in Kyoto:

- April before the late spring/early summer tourism rush
- October before the fall tourism rush
- January after the fall tourism rush

Additionally, we suggest keeping a log of the schedules of each location so a user does not arrive at one only to find out they cannot go in.

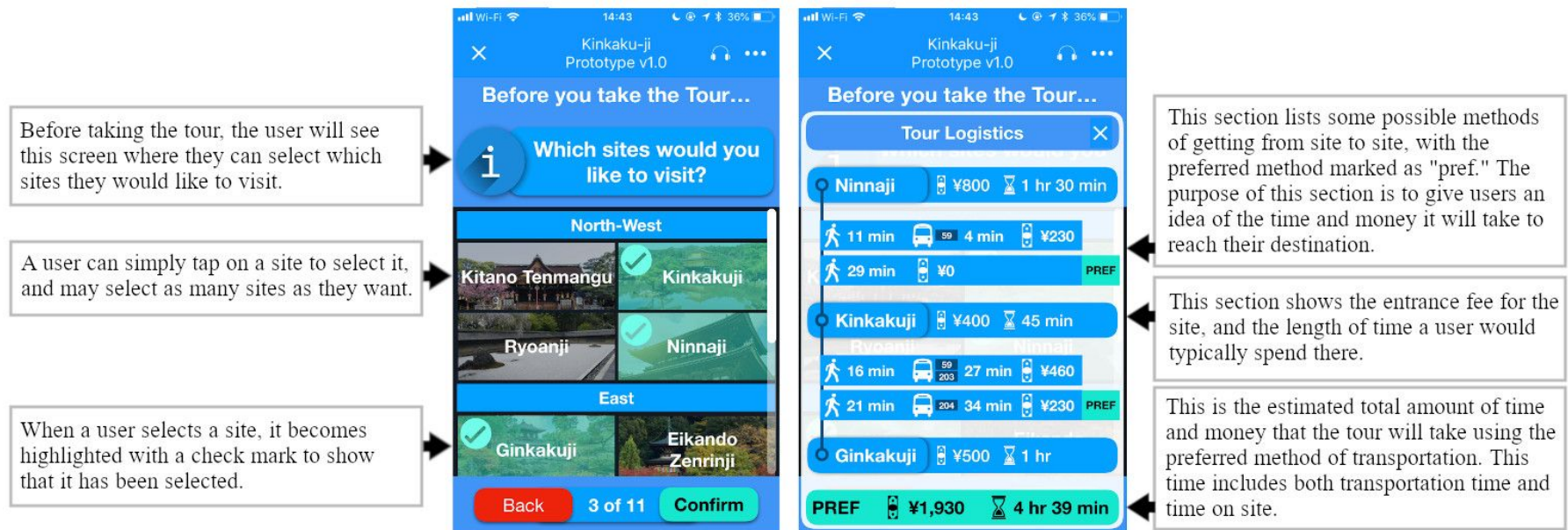


Figure 30: Suggested Implementation for Recommendation 8

09 Provide the Tour in Other Languages

Limiting the tour to English-only speakers restricts the majority of Kyoto VR's potential audience. In addition, the users for whom English is not their primary language will tend to have frustrations and difficulties using the product, something we consistently noticed in our UX Testing. Including tour options in Eastern Asian and a European language will greatly increase the number of potential users.

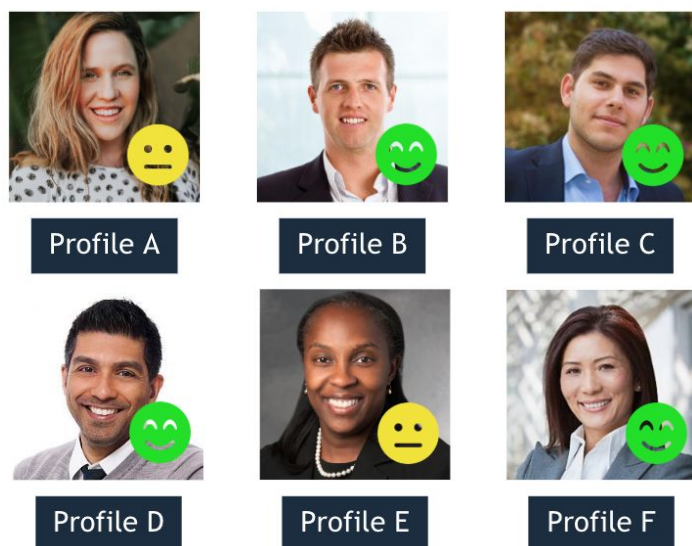


Figure 31: User Profile Reactions to Recommendation 9

As shown in Figure 31, user profiles B, C, D, and F all strongly approve of this recommendation as non-native English speakers. They tend to have difficulty understanding when jokes and anecdotes are made. Meanwhile, users A and E are native English speakers and therefore feel indifferent to this recommendation.

Sticking Point Most Tourists Aren't From English Speaking Countries

Of the people we surveyed in front of Kinkaku-ji, only 4/16 were native English speakers. Among our test users, only 7/20 were native English Speakers. Almost all of our users who missed an audio trigger or misunderstood the directions were not native English speakers. In addition, people will almost always be much more inclined to buy an audio tour if it's in their native language.

"Of the 28 million tourists to Japan in 2017, approximately 75% of them were from East Asia, while only about 11% of them were from the United States, Europe, and Australia. (*Japan Tourism Statistics*, 2018)."

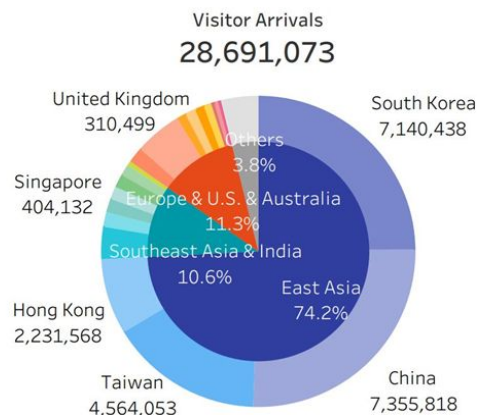


Fig 32: 2017 Total Visitor Arrivals to Japan by country/area (*Japan Tourism Statistics*, 2018)

As shown in Figure 32, an incredibly large amount of Eastern Asian tourists arrive in Kyoto annually. Offering the tour in multiple languages, specifically Chinese and Korean, will greatly increase the product's number of potential users.

10 Appeal to Tourists in Groups

15/15 of the test users traveling in groups either separated from each other or missed a point in the audio due to discussion with each other during the tour. This can cause a feeling of disconnect among group travelers. A feature that would sync the audio between two devices is a great way to make people feel as though they are still sharing the experience. It would also prevent separation and missed audio due to conversations. In addition, the app is not child-friendly. Adding a child-friendly feature could encourage parents to buy the tour as well.

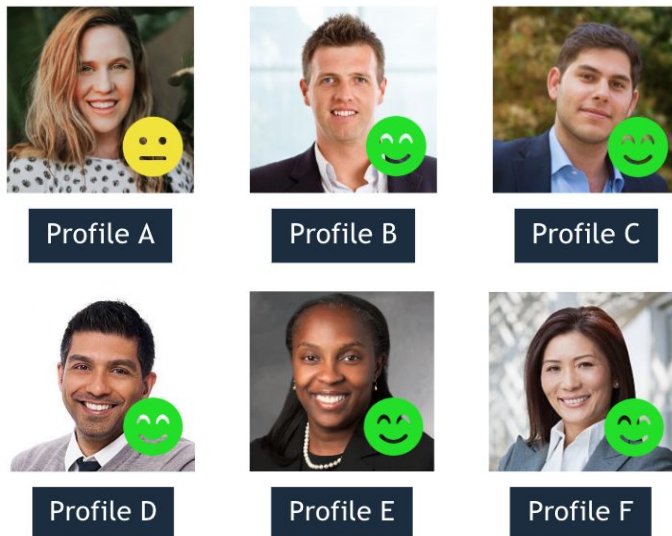


Figure 33: User Profile Reactions to Recommendation 10

As shown in Figure 33, profiles B, C, D, E, and F like this recommendation while profile A feels indifferent to it. This is due to the fact that 5/6 users were traveling with at least one other person.

They would find this recommendation to be very useful in trying to share their experience with each other.

Sticking Point

Product Limits Human Interaction

Due to the necessity of headphones and the lack of a feature that syncs the audio with multiple devices, Kyoto VR's audio tour heavily limits interactions between multiple users. Of the 15 users that we tested in groups, everyone either separated from each other or missed audio pieces due to conversing among themselves during the tour. Being on different parts of the tour can cause people to feel a disconnect amongst themselves, which is an issue many users want to share experiences with each other.

Sticking Point

People Travel With Their Families

25/33 of the people we surveyed were traveling in groups. Among these 25 people, more than 5/25 were traveling with their families. If an audio tour costs money and does not provide any form of entertainment to their children, traveling parents will most likely not be willing to pay for it. The following quotes from our research highlight the importance of appealing to all age groups:

“Younger audiences are more inclined to participate in a tour if there are interactive components such as audio, video, photos, etc. (Carbonell, 2011).”

“Overall, a mix of mediums is important because it guarantees that the tour will reach the widest possible audience (Luga et al., 2016, Background, p.12; Appendix B)”

Suggested Implementation Audio Syncing

This application does not currently make use of the Bluetooth capabilities that exist within every modern smartphone. Bluetooth technology has a general range of about 10 meters when connecting two different smartphones. In addition, smartphone Bluetooth chips allow for multiple connections. Kyoto VR could implement a feature in the application where multiple phones that are running the app can sync together using a technology such as Bluetooth. From there, the phones could play the audio at the same time, based on the first phone to arrive at each hotspot.

Note: This implementation will bring up an issue of restricting user interaction. Because of this, we highly suggest Kyoto VR implement [*Suggested Implementation for Audio Control*](#) in addition to this implementation, as it will give the users at least some bit of control to talk to each other.

Suggested Implementation Child-Friendly Mode

During user testing, only 1/20 users was a child with his parents. Currently, the population in the under 18 age range is not part of the target market. However, if Kyoto VR decides to attract families with children under the age of 18 in the future, a feature should be implemented to make the app more child-friendly.

On the in the selection screen for “What would you like to hear more about” (see the suggested implementation for offering customizable variations of the tour) offer a “Child’s tour” option. This would be supplemental to the base tour to guarantee that the children also learn about the cultural sites they visit. The supplements could be things such as audio segments that include body humor, short animations about the cultural site, or a scavenger hunt. Using a mascot can also be an effective method of entertaining children under 18. For example, the Worcester Art Museum used a cartoon dog as a mascot as part of its audio guide (Appendix B). These suggestions are currently just ideas because the user testing only included one family with a child under the age of 18. More user experience testing will be necessary if this feature is to be implemented.

11

Keep a Consistent Amount of Humor Throughout Each Tour

More than 5/20 of our test users remarked that the humor in the tour added an extra level desirability to the experience, noting that it made it significantly less dull. There were only two parts in the 20 minutes of audio in the Kinkaku-ji tour that had fun jokes, but they really stood out to the users that enjoyed them. Keeping up with bits of humor scattered about can greatly increase the desirability of Kyoto VR's product and experience.



Figure 34: User Profile Reactions to Recommendation 11

As shown in Figure 34, Profiles A, C, and F approve of this recommendation. Profiles A & C enjoy the jokes that a tour like this can provide, while F dislikes an overly formal tone. Profiles B, D, and

E are indifferent to this recommendation because they are more interested in what the information is and do not care if there is more humor or not.

Sticking Point

People Find Tours Boring

In our background research, we found that in order for an audio guide to be successful, it needs to be fun and have more than just straight facts. This was confirmed in our user experience testing after many test users claimed that the tour was enjoyable solely because of the humor. The following quote, taken from our background research and highlight the importance of fun and jokes within an audio tour.

“Overall, a mix of mediums is important because it guarantees that the tour will reach the widest possible audience (Luga et al., 2016, Background, p.12; Wallace, W. Bumpus, V (2018, September 15). Personal Interview; Appendix B)”

Sticking Point

Very Few People Buy Tours

“The narrator’s attitude, jokes and anecdotes affect the desirability of the tour (Appendix B).”

Many of our test users expressed that one of their least favorite parts of an audio tour is that the tour can get boring, especially without a tour guide. 20/33 of the people we surveyed claimed they had never taken an audio tour before, and only 2/20 of our test users had downloaded a tourism application before coming to Kyoto. A great selling point for the application is that the tour is both informative and fun.

Additional Considerations for Development

In the following section, Kyoto VR is provided with 7 smaller recommendations. These recommendations are less pressing than the 11 highlighted above or we did not have enough conclusive evidence to make them into full recommendations.

Tell Stories About People

One of the content topics that was most commonly referred to by the test users was the story of the monk who burned down Kinkaku-ji. Additionally, when we researched audio tours by taking them around Worcester and Kyoto, we found that the parts of the tours we found most interesting were the parts that told stories about people. These stories were not about high ranking individuals such as rulers and dictators. Instead, they were about lesser-known individuals. Including more special stories about everyday people within the product's tours could greatly increase their appeal. 2/6 of the profiles would be pleased with this recommendation because they wanted to hear more interesting stories about people. The rest of the profiles would be indifferent to this recommendation.

Consistent High Audio Quality

Many of our test users remarked that the audio quality within the tour was perfect. Due to the nature of an audio tour, poor sound quality can detract from a user's experience, making the tour more difficult to understand and enjoy. We highly recommend that Kyoto VR test all of the recorded audio immediately after recording to check for clear and smooth sound quality. All of the profiles would be pleased with this recommendation.

Include Music

When we took the audio tour at Nijo castle, the traditional Japanese music enhanced the experience of the tour. A few of our test users noted Kyoto VR's tour could use some music to enhance the experience. One of the profiles would be pleased with this because they specifically asked for it. The other profiles would be indifferent to this recommendation.

Account for Users Missing Audio Locations

The difficulty of a non-restrictive GPS audio tour is that users are prone to missing key audio pieces. A few test users missed the first major audio clip, which described the architecture of Kinkaku-ji and the pond, and their tour experience was negatively affected. If the app could keep track of which locations the user has been to during the tour and tailor the audio to their current experience, the tour will keep up with what the user knows, providing them an enhanced experience. All of the profiles would be happy with this recommendation.

Try to Mention All Buildings and Notable Objects

A few of our test users became confused when they saw buildings that the audio guide had not mentioned. It raised concerns that they were going the wrong way or had taken a wrong turn somewhere. In order to prevent this, mentioning all places of importance within each site will work. 2/6 of the profiles would be happy with this recommendation because they become confused when they pass a structure that is not mentioned in the audio tour. The other profiles would be indifferent to this recommendation.

Never Go Too Far Into Detail

Providing too much information on one topic can detract from the rest of the tour. Providing the user with too many dates can overwhelm them, and many of our test users felt that dates and numbers were easily forgettable. While dates and numbers can be significant, it is important to note they should be used in moderation. 3/6 of the profiles would be happy with this recommendation because they enjoy a more brief tour with interesting facts. Two of the profiles would dislike this recommendation because they like to have a lot of details in their tour. The final profile would be indifferent to this recommendation.

Include On-Screen Photos

Many of our users remarked they wished to see on-screen photos. Some photos would be for historical context, others would be to reassure users they are in the correct location. Although it would detract from the hands-free aspect of the experience, photos could be a great way to stimulate interest, add to the narrative of the tour, and make the experience more interactive. 2/6 of the profiles would be happy with this recommendation because they expressed a desire to see photos pertaining to what they are looking at. The other profiles would be indifferent to this recommendation, except for one who would dislike it because he enjoys the hands-free aspect of the tour.

Narration Guide

The following guide depicts our suggested method for narration. We built this brief guide based on our feedback from user experience testing and research into different audio guides. This guide can be given to narrators of this tour and will help to keep the narration style consistent across tours.

The guide includes suggestions for pace, tone, content and directional language. Each suggestion includes a brief description and the suggestions for pace and tone include reference material to provide context. A full-size version of the Narration Guide can be found in Appendix I.

Narration Guide	
<p>Pace</p> <p>Keep a Steady Pace of 170 Words per Minute</p> <p>References:</p> <ul style="list-style-type: none"> • Kinkakuji Prototype v1.0 izi.TRAVEL, Kyoto VR • YouTube Video: youtu.be/RHVCZ-EmUkc • YouTube Video: youtu.be/A50rOCPEvzc 	<p>Content</p> <p>Topics</p> <p>Include information regarding the following topics in the content:</p> <ul style="list-style-type: none"> • History; Stories about individual people • Cultural Background; Traditions that • Architecture; How it relates to its surroundings • Jokes and Fun Stories <p>Additional Considerations</p> <ul style="list-style-type: none"> • 2-4 anecdotes for every 20 minutes of audio • Make observations that a normal tourist wouldn't usually make • Make sure to mention all the buildings at the site location • Use the phrase "People often ask me" in order to replicate question-answer
<p>Tone</p> <p>Keep a Calm and Steady Tone</p> <p>Vary Inflection to Emphasize Important Parts</p> <p>Even though a calm and steady tone is desired by most users, inflection of certain parts keeps the audio from becoming monotone and boring.</p> <p>References:</p> <ul style="list-style-type: none"> • Kinkakuji Prototype v1.0 izi.TRAVEL, Kyoto VR • YouTube Video: youtu.be/5hvVjOqk_4o 	<p>Directional Language</p> <p>Define a Prelude for the Directional Language</p> <p>At the beginning of the experience, define the directional language you will be using throughout the tour, e.g.:</p> <p>"When I refer to your right, I mean the direction to your right when facing forward on the path."</p> <p>"Please pay close attention to the audio; at the end of some segments I may have instructions as to where I would like you to go next"</p> <p>Use Uniform Language throughout the Tour</p>

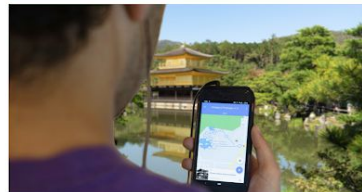


Figure 35: Narration Guide

Conclusions of the Project and Future Work for Kyoto VR

Based on the recommendations, these are the next steps Kyoto VR should take in the development process of their AR audio guide.

Finished Product Testing and Improvement

This work is similar to this project. However, the sole focus would be to improve a more complete version of Kyoto VR's product. This would include the following:

- Observing users in the field
- Collecting feedback
- Creating the language for a suggestions feature within the app
- Researching and adjusting the pricing of the product
- Conducting large focus groups with users; and
- Building upon our work and conclusions

In addition, this work would focus on the traits of the product that we did not, such as the app's usability. This work is critical to the success of the product.

Advertisement Campaign

Once the product is ready to be tested, Kyoto VR should focus on marketing. Only 2/20 people we tested told us they had downloaded an application to tour Kyoto and 20/33 of the people we surveyed claimed they had never taken an audio guide before. This work could include researching and implementing a new market strategy, reaching

a new audience, designing advertisements, and look towards the pricing and its adjustment for the product. This would help Kyoto VR increase awareness for the product, which would increase its user base and revenue. Based on our experiences, we suggest advertising by distributing QR codes through the Kyoto Office of Tourism and through popular hostels and hotels.

Expansion

The expansion of the product and its capabilities will eventually be necessary to maintain the user base and to grow the target market. The work surrounding this could include researching and writing material for new destinations within the guide, translating the product into different languages, taking pictures for the guide, etc. There are many different routes the product could take to help its continued success. We recommend surveying users to determine what needs improvement within the app. We suggest the following destinations be added to the tour as part of its expansion:

1. Fushimi Inari
2. Ginkaku-ji
3. Kiyomizu-dera
4. Nijo Castle
5. Arashiyama

User Interface (UI) Research and Creation

A proper user interface (UI) can be integral to the success of an application. Users, especially older ones, often have difficulty navigating modern applications. Researching UI designs can increase the intuitivity and desirability of Kyoto VR's application.

For reference, look to popular smartphone applications such as Waze or Facebook. Both applications are intuitive and do not require tutorials on how to use them. Additionally, we have provided a photo of a well-made UI from the popular audio guide application Detour, as shown in Figure 36.

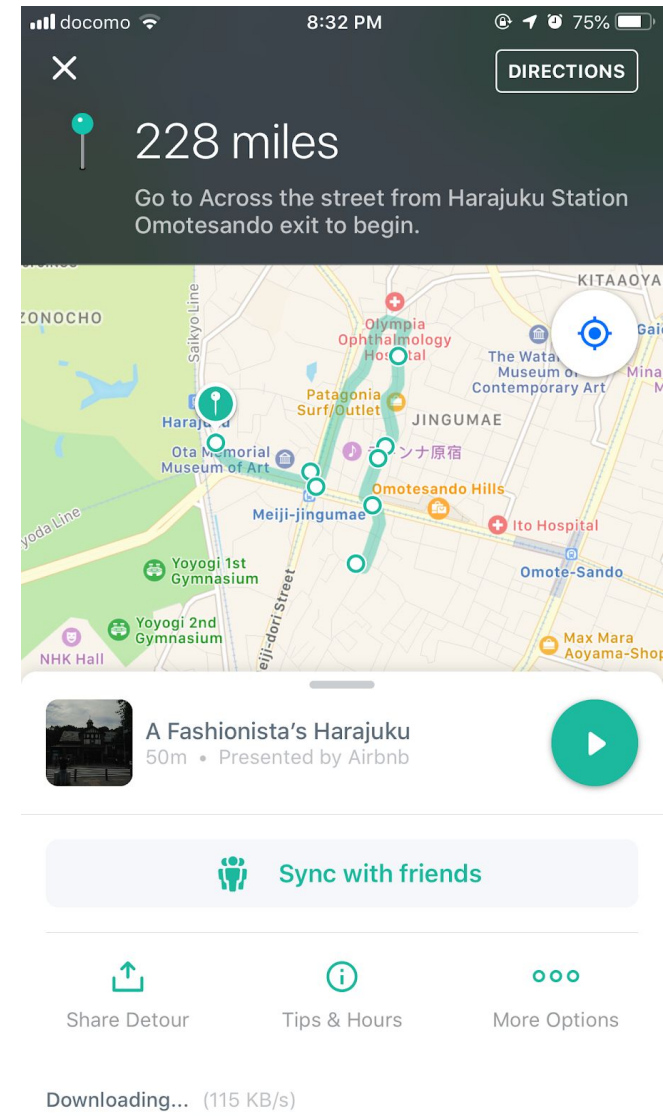


Figure 36: UI Example

Conclusions

The goal of our project was to improve Kyoto VR's new audio guide. We researched methods for user experience testing, interviewing and surveying. From our research, we created a procedure to test Kyoto VR's product and survey tourists in Kyoto to gauge their interest in an experience like Kyoto VR's.

From our user experience testing, we built user profiles and identified sticking points, aspects of the product that would inhibit the use or adoption of the product. We gauged a potential price of Kyoto VR's AR audio guide using survey data and also determined that the public is interested in what Kyoto VR has to offer.

Analysis of our testing revealed several trends among our users. Through the quantification of these trends, we constructed user

profiles. In turn, our user profiles, in tandem with additional feedback from our user experience testing, helped us create our final recommendations.

Kyoto VR has a viable product that people want to buy. Many of our test users enjoyed the prototype and wished to see an expanded and finalized product. Even the users who disliked the prototype still expressed a desire to see a completed product. We are excited to see the development of Kyoto VR's AR audio guide and are hopeful for the future of the company and its audio tour.

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Appendices

APPENDIX A: INTERVIEW WITH THE DIRECTOR OF THE WORCESTER HISTORICAL MUSEUM

This appendix contains a summary of our interview with the director of a museum in Worcester, MA that offers a self-guided tour.

Our team was put in contact with William Wallace, the Executive Director of the Worcester Historical Museum (WHM), with the intention of interviewing him for additional background research on the do's and don'ts of self guided tours. The Worcester Historical Museum provides, in addition to its charming and surprisingly modern exhibits depicting the history of the city of Worcester, brochure based walking tours that can be taken any time for free. We met with Mr. Wallace on September 14th and conducted our interview. Vanessa Bumpus, the Exhibitions Coordinator of the museum, also sat in as she's the creator of many of these tours. While the Worcester Historical Museum doesn't have an actual audio tour, we still learned a bit of key information from them. It was also helpful to simply hear firsthand about what goes into a successful tour from people who actually design and run them.

The first and arguably most important thing both Mr. Wallace and Ms. Bumpus wanted to stress about the key to a successful tour is that it needs to be fun and accessible. Often families will take tours together, and the age range of these families can stretch from 7 to 70. In addition, we learned that (at least for the Worcester Historical Museum) audiences of these tours are often repeat users. Both Mr. Wallace and Ms. Bumpus also made it incredibly clear that having a tour be circular (ie tour takers end up where they start) is incredibly important. It increases the desirability of the tour, because tour takers

won't have to finish the tour and walk back the same distance as the tour to their car.

As for suggestions as to how to improve the content of a tour, Mr. Wallace and Ms. Bumpus had three key suggestions. First, they said to create an overarching narrative. Putting a story behind what users are learning can greatly increase the fun and excitement the tour brings. Next, Mr. Wallace said that it is critical to include the predicted time the tour will take on the description of the tour. Users may be disappointed with the tour if it's too short, or feel as though it drags on if it's too long. Finally, Ms. Bumpus made it clear that the content of the tour needs to be as accurate and up to date as possible. Even one incorrect location of outdated fact will immediately bring down the users review of the tour. Incorrect information discredits the assumed legitimacy of the tour, and suddenly the user wouldn't know what information to trust.

For any tours that they charge for, they tend to not see any form of audience dip. They claim that if the tour is well advertised and seems fun, people will take it for any reasonable price (below 20 dollars). Themed tours, such as their halloween themed "Ghost Tour of Worcester", do particularly well. In fact, the only inhibitor they could think of for their tours is the whether. As an uncontrollable (and in New England *very* unpredictable) factor, the whether can be incredibly detrimental to the number of tourists taking the WHM's outdoor tours.

APPENDIX B: OUR TRIP TO THE WORCESTER ART MUSEUM

This appendix contains a write-up of our experience with the audio guide offered at the Worcester Art Museum.

As part of researching the effectiveness of audio guides, we went on a tour of the Worcester Art Museum (WAM), which, founded in 1896, houses 38,000 exhibits. We decided to take the audio tour

which involved an audio wand and an accompanying audio map at the cost of \$2 per wand. For visitors who don't want to pay for the wand, the entire audio guide is on the WAM website online. As far as the audio wand is considered, tour takers have the option of placing it next to their ear, but we found that in a crowded museum, tour takers would hardly be able to hear anything. The other option is to use headphones as the audio wand comes with a 3.5 mm headphone jack. The accompanying map includes a path through numbered exhibits in the audio tour with information on which exhibits exist in which room, and on which floor. The audio tour is only available for the permanent exhibits which are marked by a headphone sign to make them easy to spot them in a room full of exhibits.

The audio tour begins with a short, concise and informative introduction about the history of WAM and the nature of the current exhibits. It also includes instructions on how to use the audio wand with the aid of examples, so one doesn't have to ask someone on how to operate it, which truly highlights the "self" in this self-guided audio tour. The speaker has very clear articulation and its is very easy to understand. Tour takers get a choice of two languages, English and Spanish, both of which were very accurate translations of each other and convey the subject matter well. One issue with the audio wand is the lack of volume control which can get irritating in case the audio is too loud or inaudible. Another problem is that users do not have the option to pause the audio; users can only stop it and then have to begin from the start.

The content of the audio guide was very well thought out. It worked alongside written information at the exhibit but instead of just piling on information, it followed a narrative. In case of architectural exhibits like the Chapter House, the audio guide would begin by forming an image in the mind of the listener and taking them back in time so that they could imagine how the exhibit looked like in the old days. It builds the narrative in a way that users can imagine how people would gather together in the Chapter House and sit in rows of chairs and pray in front of a priest who presided over the

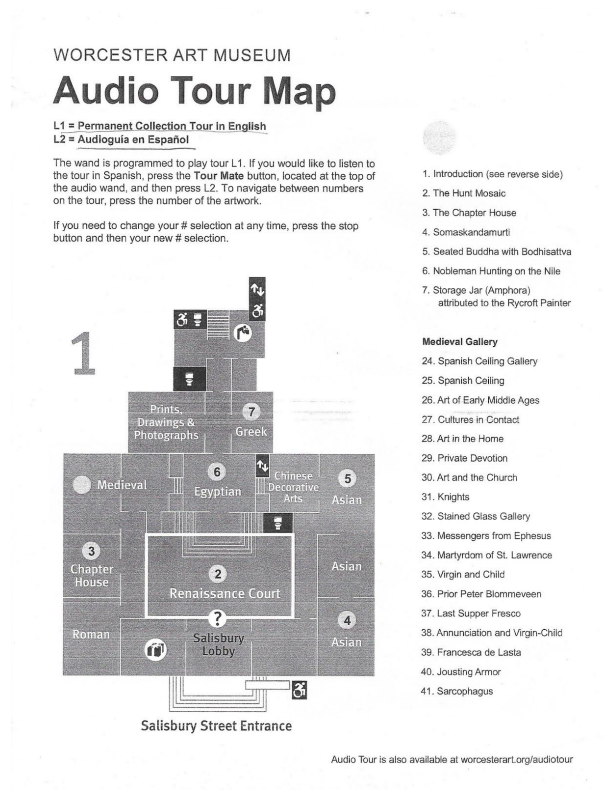


Figure A1: Worcester Art Museum Audio Tour Map

congregation. It would also talk about the architecture of the exhibit and give information on it after directing users to the element that is being mentioned by using phrases like “look at that window” or “take a look at the ceiling”. A lot of work went into making this experience as immersive as possible.

In case of impressionist paintings, like the Water Lilies by Claude Monet, the speaker would give information about the style of painting and its history along with information on the life of Monet and how he painted this particular painting. They would also try to engage the listener by asking them to imagine... and to look at the painting and notice the subtleties of it being mentioned by the speaker. In case of Renaissance era paintings like Discovery of Honey, it again talks about the style of the painting and then about Renaissance and the historical significance of paintings during this era. It also goes ahead and explains the subjects of the painting and their cultural and religious significance. As we were going through the audio map, we wanted to look at a painting of Saint John the Baptist, but upon going to the room it was supposedly in, we found that it wasn't there anymore, suggesting that the audio map was out of date.

For all other kinds of exhibits, the audio guide would talk about the history of the exhibit, where it came from, the subjects of the painting, its symbolism, its historical, cultural and religious significance. The speaker was really engaging by asking the listener questions and asking them to imagine... The audio guide had a different speaker talk about each exhibit to make sure that the tour didn't get monotonous and boring and provided different perspectives at the same time. As mentioned before, this audio tour is only for the permanent exhibits but the speaker for each of these exhibits does recommend other temporary exhibits that are similar to them. This does take users out of the numbered tour but gives users an opportunity to learn more about a specific theme or part of history.

One of the best features of the WAM self-guided tour was a “Family guide” in the paintings section which were pamphlets with space for children to draw on, allowing them to be creative and

actually be engaged in the history of the world. Each floor had “Art Carts” which were essentially mobile tables which children can use to draw on. The museum also has a virtual assistant that can be accessed via tablets in each room and can be used to teach children more about the exhibits in a really fun way. The presence of such technology and resources makes the museum inclusive of children.

APPENDIX C: AUDIO TOURS IN KYOTO

This appendix contains write-ups of the three pre-existing audio tours we took in Kyoto. This includes the Fushimi Inari audio tour, the Kyoto Imperial Palace audio tour, and the Nijo Castle audio tour.

FUSHIMI INARI AUDIO TOUR

This section includes both a summary and the raw data from our experience with the Fushimi Inari audio tour.

Summary

We found a few positive aspects of this tour, but we disliked many aspects about the tour. The content was alright; it talked about the history and architecture of the shrine as well as its cultural and religious significance. The tour discusses how the shrine is used today. The tour also has interesting facts about customs. However the narrative was not very engaging and at the beginning of each segment, it would list the names of the buildings in Japanese with no context, which was incredibly confusing. The narration provided many helpful directional cues for navigation, but if users ever got confused, it would be difficult for them to figure out their location since the tour itself was through their website and each audio segment opened in a new window, taking users away from the map provided.

Raw Data

- 9 audio segments
 - Lengths were not consistent - ranged from 18 seconds to almost 3 minutes
 - Narrative segments were choppy
 - Would randomly stop for odd amounts of time before continuing with the rest of that part
 - Would end the segment abruptly without warning
- Took about 20 minutes to complete

- No signs to mark the locations
- Monotone speaker
 - Not always clear and occasionally spoke too fast (not consistent)
- Option to read about each of the audio tracks
- Directional cues about where to look during the audio segment
 - Not for all of the locations but some
- Additional instructions helpful
 - Ex. Entry is not permitted at some of the shrines
- Link: <http://fushimiinari.jp/en/>

KYOTO IMPERIAL PALACE AUDIO TOUR

This section includes both a summary and the raw data from our experience with the Kyoto Imperial Palace audio tour.

Summary:

While the information on this audio tour was good, the tour had many faults. To begin with, the audio was far too monotone and didn't tell much of a story. It remained relatively uninteresting except for the content itself. In addition, it was very un-updated for the extensive construction they were performing at the palace, restricting a large portion of the tour. What the tour did do well was give lots of instructions (even though they weren't very comprehensive), and highlighted the path very well. It also gave the option to listen to each piece of audio and provided on-screen pictures accompanying the audio.

Raw Data:

General Information:

- 22 audio points
- The audio guide app was advertised at the entrance to the palace.
- The tour mainly consisted of short 30-60 second segments
- There were no additional routes or audio
- segments of the tour were sparse while others were dense.
- 1 hr long (50 minutes)
- **Link:** <http://www.kunaicho.go.jp/e-event/app.html>

The Audio Guide/The app:

- There was a map in the app that showed all of the audio locations.
 - Has user's location on the map
 - Sometimes the map location was accurate, but at other times the notifications for the audio segments were early or out of order. Also, the locations of some of the

audio segments were out of place on the map because of the construction currently being done to the palace.

- The app would notify with a buzz and a push notification when users were close to an audio segment, but it would only trigger if users were in the app. Notifications could also happen while an audio segment was already playing.
- There would be several pictures relevant to the current audio segment that users could swipe through, but there was no audio cue as to when the next picture was shown.
 - The picture didn't match up to what I was looking at sometimes
 - For areas of the palace that were under construction, it was nice to see a photo of what it usually looked like.
- Easy to rewind
- Can take pictures while listening to the audio

Content:

- The start of the audio tour was at the exit of the palace, which meant we either had to manually select the introduction or listen to the introduction after we listened to the concluding audio segment for the tour.
- There was no overarching narrative for the audio guide.
- The narrator did a good job of not sounding like a robot.
- The audio guide provided additional information to what was on the signs around the palace, but there was also information on the signs that wasn't in the audio guide.
- The information, while useful and relevant, wasn't very engaging.
- Good use of directional instructions (view from the wide edge, on the right is the tiger room) -used landmarks Good use of landmarks (open space, at the wall is the gate)
- Linked to popular books that reference this place
- Glad left out some of the technical details on the signs here, like lists of facts on how the structure was built
- shoekicku society was cool

- good exit audio
- Introduction
 - Had all the rules
 - Pointed out bathroom locations, but the second location wasn't re-mentioned when you were near it later in the tour
- Second segment
 - lots of background on the palace and mentioned all the key names that were referred to later in the tour

Bad stuff:

- Narration was boring often
 - A bit too monotone
 - Little narrative
- Directions were subpar
 - Didn't leave enough time to find the things we were looking for
 - Not provided often enough
- Asked you if you wanted narration and I had to keep checking my phone and leave the app open. Bleh
- Not updated in any way

Content:

- Not updated: The tour started at the wrong gate - It is extremely important to keep the tour up to date otherwise a large majority of it gets mixed up. In addition, many sites were under construction which the guide did not acknowledge.
- Disparity between signage and audio: The differences between the signs along the tour and the audio that played during the tour were confusing and made you question which one was correct; also decreases credibility. Overall, it makes a bad experience.
- "Missing" sites: Sites that are not mentioned in the audio guide cause confusion
 - Two large buildings which seemed (from the signage) to be very important were not in the tour at all

- No overarching narrative
- Inconsistency in the amount of content on each site: Some sites lacked content, it was strange to have so much content on some things and then almost nothing on others
- No verbal signal when the audio for a site was ending: It often ended with a comment on the architecture and then stopped abruptly. It would have been better to end with something else.
- No navigation help: No audio to help navigating from site to site.
- Some assumed vocabulary: Assumed you knew what the emperors "retainers" were.
- Inaccessible content: It talked about the floor of a building, but it was too high up to see properly, I could barely see it.

App:

- Having to click on the site each time was annoying (doesn't play automatically)
- Upon arriving at a site, it buzzed, but didn't show a notification if you were outside of the app.
- Sites triggered in the wrong places

Good stuff:

- Pre-departure info: Tells length (distance) of the tour, photography, and bathroom availability at the beginning
- Relating the site to modern events: It was explained why the thrones were moved to Tokyo (for the current emperor) related to current/modern events.
- Referencing a previous part of the tour: Part way through, when it talks about the sacred sword and another artifact, it references the previously mentioned sacred mirror, making it clear they were related. Helps build a big picture.
- Definitely enough content (22 points) while remaining a very linear tour
 - Length was good

- Provided photos of the locations so you could make sure you were looking at the right thing at the right time
 - Additional photos gave more detail of inside buildings we couldn't enter and helped accompany the narration
- Beginning mentioned where bathrooms were and how long the tour would take

App:

- Pictures were helpful (and the only way I found the sites)
- Helpful to be able to select, replay, and move to different playback times

NIJO CASTLE AUDIO TOUR

This section includes the raw data from our experience with the Nijo Castle audio tour.

General Information:

- Offered in English, Spanish, and French
- Not GPS based
- Straps on the device to make it hands-free
- There were 26 audio stops/audio segments
- The tour is estimated to take 60 minutes
 - Actually took almost 2 hours
- The tour came with an audio guide map
 - Each audio segment matched up with a number on the map
 - Provides a list of all locations
 - The main palace has too many locations for the general map so they provide a separate zoomed in map of the palace to be able to show each individual location
 - When outside the palace - tells you where to go and which number to press at the end of each segment since there are no more signs/visual cues
- You don't have to interact with anyone
 - Tells you what you should and should not do, like taking pictures inside the palace
 - Could be a bad thing for people traveling in groups
- There are optional segments with more information for certain areas
- Signs (inside the palace) tell you what number to put into the guide at different locations

The audio guide/wand:

- Rented the audio guide device
- Instructions on the pamphlet and from the employee for use

- Had to manually input the number for each audio segment when you reached the location
- Easy rewind controls
 - **It was nice to be able to repeat parts as necessary if you didn't understand or hear something to be able to go back and listen to it again without worrying about keeping up with a group**
- There was a guide screen that provided photos and images that go along with the audio
 - Images difficult to see in the sunlight
 - Can't change the brightness of audio guide
 - **Useful for directing tourists' attention to the correct area of the narrative**
- Sometimes hard to see/spot the parts of the castle that the guide referenced to
 - Especially when crowded
- The headphones they give you start to hurt after a while
 - Can't use your own headphones
 - **Anthony** - Took me half the tour to figure out the right way to put on the headphones so they don't hurt

Content:

- First three segments are much too close together
 - Leaves you standing in one place for too long
- The narrator was monotone
- Was not engaging - just a narrator talking at you rather than to you
 - There weren't any jokes to lighten the mood/add engagement
 - Dry documentary style
- Segments are too long for a tourists' attention span

- The pacing of the narrative is good for being able to process the information as you go

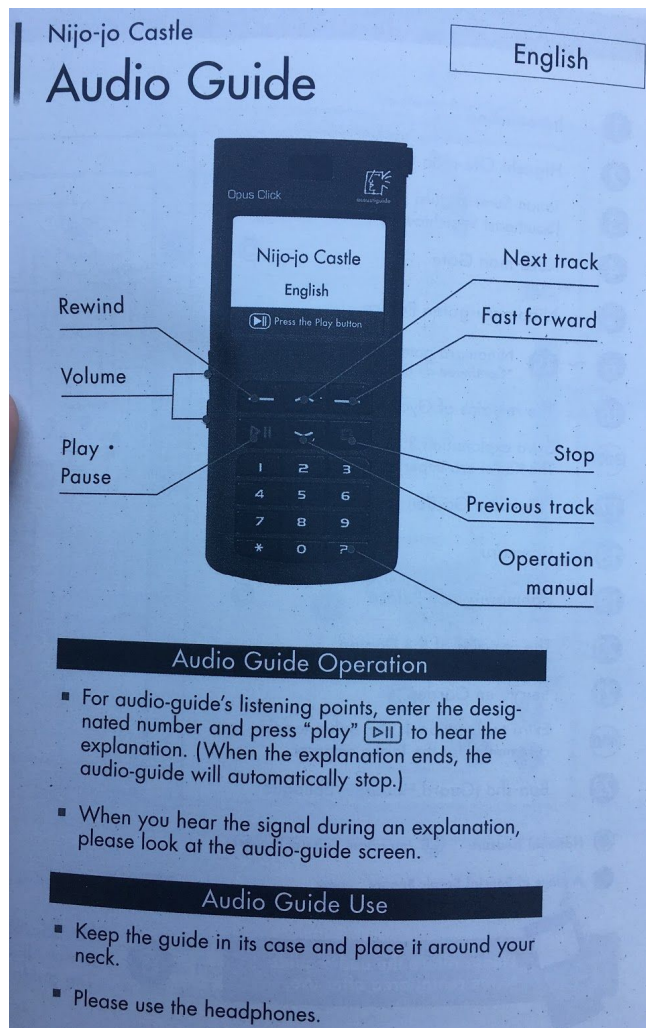


Figure A2: Nijo Castle Audio Guide Instructions

- There was not much of a story

- Kind of revolved around the idea of shogun but not enough to make a story
- No mention of nightingale floors
- Certain segments had music
 - Start of introduction segment
 - Bonus content segments
 - Epilogue segment
- The introduction prepared you for the rest of the tour
 - i.e. when to look at the audio guide screen
- Each segment told you where to go for the next audio segment
- Used a lot of Japanese terms for things
 - **Anthony** - I didn't like it because I didn't find that information relevant/I got confused by it
- Provided extra background to Nijo
 - Useful to have more information in the audio that is not on the readable signs in the palace (when you don't take the tour)
 - Similar information between audio and signs
- Important spots and highlights national treasure, cultural property and place of scenic beauty
 - Mentions that on the map too so you have a visual cue of where important things are and what they are
- Some of the explanations were interesting
 - Ex. The roofing for some of the gates was made out of layered bark that had to be replaced every 30 years
- Hard to stay in place for each of the audio segments within the palace because everyone is walking around you
 - Too much/too many audio segments?
- Audio explained some decorations that were under restoration that couldn't be viewed
 - Seemed pretty stupid
- Missed out on mentioning the carp - could make it more interactive
- Mentions where the bathrooms are

- Gives time to walk to the next room when there are a couple of different rooms in one segment

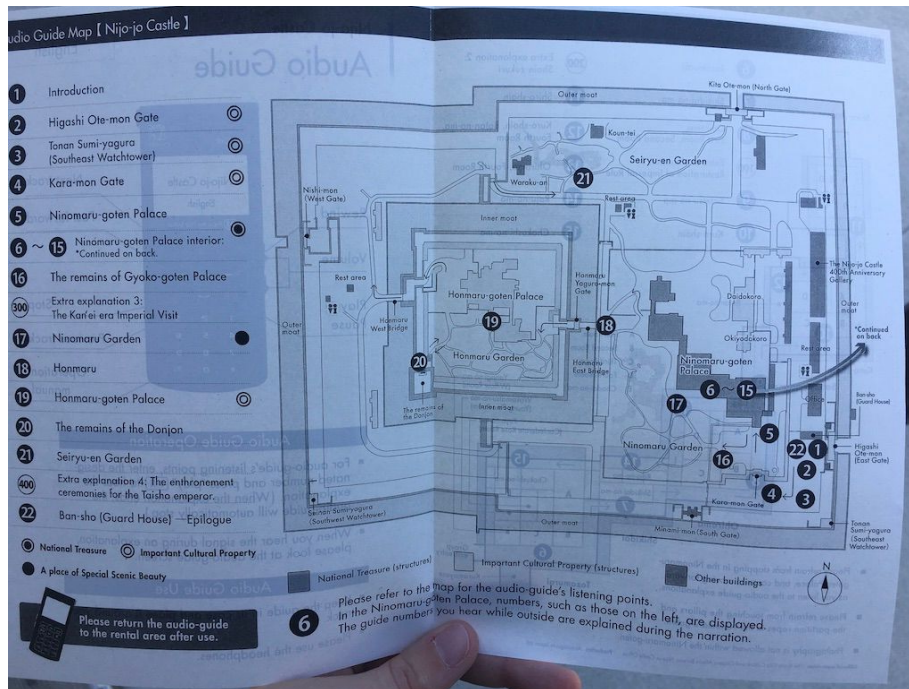


Figure A3: Nijo Castle Audio Guide Map (i)

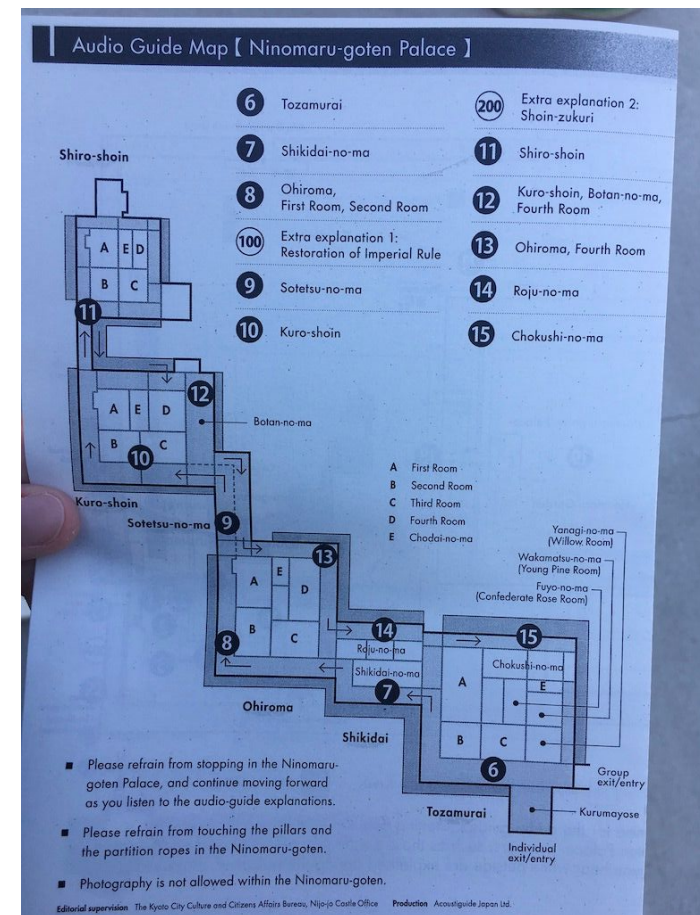


Figure A4: Nijo Castle Audio Guide Map (ii)

APPENDIX D: USER EXPERIENCE TESTING METHODS

This appendix includes all of the methods used to conduct the user experience testing in this project, including a procedure, the interview questions, and the consent form.

PROCEDURE

This section contains our procedure for conducting our user experience testing and what we had to bring with us before we could conduct our user experience testing.

Do the following at least one hour before testing:

1. Charge Testing Phones
2. Update Prototype of Tour on Testing Phones
3. Update Prototype of Tour on YOUR Phone
4. Print Post Interview Sheets (at least 3 forms)
5. Buy Earbuds (at least 3 pair)
6. Verify the cafe is open

Pack the following:

7. Bring 2400 yen minimum for customers. (Doesn't include your transportation)
8. Bring sign (Come Talk to Us! Free Tea, Free Audio Tour, Free Entrance)
9. Bring post interview form (3 copies)
10. Bring earbuds (3 pair)
11. Bring souvenirs
12. Bring clipboards
13. Bring stapler
14. Bring laptop/notebook
15. Bring pencils
16. Bring phones
17. Bring Consent Forms

Outline of Procedure:

1. Gather materials (1 hour)
2. Gather users (usually takes 1 hour or less)
3. Pre-interview (10 minutes)
4. Test the audio tour (30 minutes)
5. Post-interview (30 minutes)
6. Debrief/Preliminary Analysis (2 hours)

Procedure:

1. Wait with sign where there are tourists - lure them in with good looks
2. Once they're hooked, ask them if they have unlimited data on their phones or if they would like to use a smartphone we provide. Set up the tour but DON'T START IT until you are at the entrance for Kinkaku-Ji
3. From there begin the tour. Make sure to run up ahead by the time they are hearing their second audio in order to buy them a ticket. Hand them the ticket once they finish the second audio. Also, ask them how many pieces of audio they've heard. If the answer isn't two, there may be something wrong and the testing won't work
4. Follow them, listen to the tour with them, and keep notes. Keep track of everything they do, everything they say, and their facial expressions.
5. After the tour is completed, bring them to the Zip Cafe. If you leave Kinkakuji, walk straight on the right side of the road for a block. The cafe is above a little japanese gift shop. There's a sign for it
 - a. IF ZIP CAFE IS CLOSED - Either bring them for ice cream or to the alternative cafe- it is a block past zip cafe on the big main road. Once you hit the main road take a left and the cafe has a big coffee sign on it about a minute away

6. Have each test user take the physical copy of the post interview survey and fill it out before beginning asking them questions about the tour from the survey.
7. Finally, we will need to immediately analyze our data. We will be organizing our notes and drawing conclusions from them. Ideally, the users will leave their own comments that we can add in addition to our own observations. We will separate our user testing data based on whether the user was alone or in a group setting. Our conclusions from the user testing will later be used to develop our recommendations for the audio tour. We will compile this data to create user profiles. After we have analyzed and officially documented all of our data, we will be ready to move on to our next test users to gather more information.

PRE-INTERVIEW QUESTIONS

This section contains what we said to our test users and the questions we asked them before we gave them the tour.

Our team is working on the prototype of a self-guided audio tour of Kinkakuji. This audio guide is a hands-free smartphone application. It functions as follows: once you start up the app and put your headphones in, you can put your phone away. As you walk along the path in Kinkakuji, audio will automatically activate and narrate your visit. This audio will provide history while guiding you through Kinkakuji. This app, when released, will also cover many other parts of Kyoto.

To begin our testing, we will ask you a few preliminary questions. After these questions, we will then ask you to take the tour yourself using the app. We will monitor your progress as you take the tour, but please take the tour as you normally would. After you finish the tour, we will conclude with a brief post-interview.

This experience as a whole, including the pre-interview, the tour, and the post-interview, is expected to take about an hour and a half.

So to begin, I'm going to ask you a few questions about your initial reactions to the idea of our product. Take as much time as you need to consider each question, and please know that there are no wrong answers. After this, we will begin the tour.

Affect (feelings about the product):

1. Have you been to Kinkakuji before? (Yes/No)
2. You have already agreed to do this but if we had not approached you, how interested would you have been to in an audio tour for Kinkakuji? (Not Interested to Very Interested, 1-6 scale)
3. Have you taken an audio tour before? (Y/N)
 - a. Have you taken a GPS based audio tour before? (Y/N)

- b. How much do you like the idea of something like this? (1-10 scale)
 - c. Is there anything you dislike about the idea of our tour?
 - i. Why?
4. How comfortable would you be using this technology? (1-6 scale)
5. Which of these words describe your approach to this product (select all that apply)
 - a. Excited
 - b. Interested
 - c. Enthusiastic
 - d. Amazed
 - e. Curious
 - f. Unnecessary
 - g. Resistant
 - h. Unimpressed
 - i. Indifferent
 - j. Uninterested

Now I am just going to ask you a couple of questions about the technology you have access to.

Technology:

6. Do you have a smartphone? (Y/N)
 - a. Do you have the ability to download an app right now? (Y/N)

End:

1. Do you have any questions?

Great! Now let's begin the tour. Simply open the application and begin the tour (show them how if they can't figure it out, it doesn't matter b/c we are testing their experience not their ability to begin the tour).

POST-INTERVIEW QUESTIONS

This section contains the interview questions we asked the user experience test users after we gave them the tour.

Demographics/Personal Information:

1. Name
2. Age (Below 18, 18 to 34, 35 to 49, 50 to 64, Above 64)
3. Gender (Female, Male, Prefer not to say, Other)
4. Country of origin
5. Native Language
6. Whom are you visiting Kinkaku-ji with? (Alone, Family, Friends, Tour Group, Significant Other, Other)
 - a. Explain if other
7. How long are you staying in Japan?
8. What are some other sites that you have visited or are planning on visiting in Kyoto?
9. How would you rate your ability to find and navigate to these sites on a scale from 1-6?

Pre-Kinkaku-ji info:

10. Why did you come to Kinkaku-ji?
11. How did you find out about Kinkaku-ji?
12. Did you do any research before coming to Kinkaku-ji? (Yes/No)
 - a. If so, what research did you do?
13. Did you download any tourist or travel apps before coming to Kinkaku-ji? (Y/N)

Previous Audio Tour Experience:

14. How many audio tours have you taken before? (0,1-3,4-6,7-9,9+)
15. Based on your previous audio tour experience, how much would you expect to pay for this product (tour)? Answer in your preferred currency

16. Based on your previous audio tour experience, how much would you expect to pay for the audio tour of Kinkaku-ji?
Answer in your preferred currency
17. Of the audio tours you've taken, what are some aspects that you liked?
18. Of the audio tours you've taken, what are some aspects that you disliked?
19. What would you like to see in an audio tour?

Kinkaku-Ji Tour Information:

20. How much have you learned about Kinkaku-ji by taking the tour? (Nothing to Very much, 1-6)
 - a. What did you learn?
21. Did you enjoy the information provided in the audio tour? (Poorly Done to Well Done, 1-6)
22. Was there enough information in the tour? (Y/N)
23. Is there anything you would have liked to hear more about?
24. Was the narrator clear and understandable? (Y/N)
25. What did you think of the pace of the narration? (Poorly Done to Well Done, 1-6)
26. What did you think of the tone of the narration? (Poorly Done to Well Done, 1-6)
27. Is there anything you wish you could have done with the app that you were unable to?
28. What are 3 words that describe your experience with the Kinkaku-ji tour?

Payment and Recommendation

29. How likely would you be to recommend this tour to other people? (Definitely Not to Absolutely, 1-6)
30. In your preferred currency, how much would you be willing to pay for the product (tour)?

31. In your preferred currency, how much would you be willing to pay for the Kinkaku-ji tour?
32. Would you prefer...
- a. Pay for the entire app up front with all the sites included?
 - b. Download the app for free and pay for individual sites as you go?

Satisfaction:

33. Is there anything else you liked about the tour that you haven't mentioned yet?
34. Anything else you disliked?
35. Is there anything you would change about this tour?
36. How satisfied were you with this experience? (Not satisfied to Very Satisfied, 1-10)

CONSENT FORM

This is a copy of the consent form that all of our user experience testers agreed to before we started the pre-interview.

Study title	Testing Kyoto VR's Audio Guide
Researchers	Manas Mehta, Faith Kurtz, Henry Frishman, Olivia Hanson, Anthony Marge

This study will involve three parts:

Pre-Interview

We are going to ask you some questions about audio guides and Kinkaku-ji and record your answers.

Audio Tour

You will then be asked to take a tour of Kinkaku-ji using Kyoto VR's audio guide application and will be accompanied by two researchers who will be taking notes on your reactions to the tour and the things you observe.

Post-Interview

Finally, you will be asked to give some demographic information such as gender, age, and country of origin. Additionally, you will be asked to answer some questions about your experience with the tour.

These answers will be used to improve Kyoto VR's Audio Guide. Only your demographic information and responses to the questions will be used. Identifying information such as names of the participants will be kept confidential. All identifying information will be removed after 2 months.

Other Study Information

Recordings / Photographs	We may record you during the Audio Tour. The recordings will be used as user accounts of the research we have done.
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Confidentiality and Data Security

We'll collect the following identifying information for the research:
Name

Where will data be stored?	Personal password-protected laptops of the interviewers.
How long will it be kept?	2 months

Contact information: gr-kyotovr-IQP@wpi.edu

APPENDIX E: EXIT SURVEY QUESTIONS

This appendix has all the questions asked at surveys done at Kinaku-ji, Ginkaku-ji, and Ryoanji.

- How old are you?
- What is your gender?
- What is your country of origin?
- What is your native language?
- Do you live in Japan or are you just visiting?
 - If you are visiting, for how long?
- Are you visiting [location name here] for the first time?
- Are you visiting [location name here] with anybody else?
 - If yes, whom?
- Why did you visit [location name here]?
- What did you enjoy about it?
- What are 3 words that describe your experience at [location name here]?
- Is there anything you wish you had known before coming to [location name here]?
 - If yes, what do you wish you had known?
- How did you find out about [location name here]?
- How much research did you do about [location name here] before coming here?
- Have you taken an audio tour before?
 - How often do you take free audio tours of places you visit?
 - How often do you take paid audio tours of places you visit?
 - What are two things you like about audio tours?
 - What are two things you dislike about audio tours?
- What would you want in an audio tour?
- How many guided tours have you taken?
 - What are two things you like about guided tours?
 - What are two things you dislike about guided tours?
- How interested would you be in a mobile app that offered creative audio guides of Kyoto's major heritage sites including [location name here]?
- How much would you be willing to pay for this product?
- How likely would you be to use this product if it was free?

APPENDIX F: KYOTO STATION SURVEY QUESTIONS

This appendix has all the questions asked as part of the Kyoto Station survey.

- What is your age? (Below 18, 18 to 34, 35 to 49, 50 to 64, Above 64)
- What is your Gender? (Female, Male, Prefer not to say, Other)
- Country of Origin?
- How interested would you be in a mobile app that offered creative GPS based audio guides of Kyoto's major heritage sites? (Not Interested to Very Interested , 1-6)
- In your preferred currency, how much would you be willing to pay for such a product?

APPENDIX G: WILLINGNESS TO PAY DATA

This appendix contains a table of all the yen values used in our willingness to pay calculations and graphs. UX is data from our user experience testing. Kyoto Station is data from our surveys at Kyoto Station. Exit Surveys is data from the surveys we did at Kinkaku-ji, Ginkaku-ji, and Ryoanji. Pay for Product is how much a person would be willing to pay for the whole product. Pay for Tour is how much a person would be willing to pay for each tour individually. The highlighted numbers are outliers that were not put in the product pricing graphs.

Willingness to Pay Data					
UX Pay for Product	UX Pay for Tour		Kyoto Station Pay for Product	Exit Surveys Pay for Product	
¥385	¥113	¥683	¥0	¥0	¥683
¥455	¥114	¥804	¥385	¥0	¥987
¥569	¥341	¥1,138	¥411	¥0	¥1,024
¥804	¥341	¥1,286	¥411	¥0	¥1,024
¥1,159	¥341	¥1,607	¥514	¥247	¥1,234
¥1,449	¥341		¥569	¥341	¥1,365
¥1,607	¥341		¥569	¥341	¥1,365
¥2,276	¥341		¥642	¥341	¥1,365
¥2,411	¥341		¥642	¥341	¥1,365
¥5,689	¥341		¥642	¥642	¥1,365
	¥341		¥642	¥683	¥1,645
	¥385		¥855	¥683	¥2,276
	¥569		¥1,138	¥683	¥5,120
	¥580		¥1,707	¥683	¥5,689
	¥580		¥1,707	¥683	

Figure A5: Willingness to Pay Data

APPENDIX H: RAW DATA

This appendix contains all of the raw data from our user experience testing, our exit surveys performed at Kinkaku-ji, Ginkaku-ji, and Ryoanji, and our short survey performed at Kyoto Station.

USER EXPERIENCE PRE-INTERVIEW DATA:

This is data from the interview we gave test users before they took the tour. The “#” is the user number, and is on every page so the data can be compared between users.

#	What kind of Data point is the person?	1. Have you been to Kinkaku-ji before?	2. You have already agreed to do this but if we had not approached you, how interested would you have been to in an audio tour for Kinkaku-ji?	3. Have you taken an audio tour before?	a) Have you taken a GPS based audio tour before?	b) How much do you like the idea of something like this?
1	Individual	No	4	Yes	No	8
2	Individual	No	2	Yes	No	7
3	Group (2 or more)	No	1	No	No	8
4	Group (2 or more)	No	2	Yes	No	8
5	Group (2 or more)	No	4	Yes	No	9
6	Group (2 or more)	No	5	Yes	No	9
7	Group (2 or more)	No	4	Yes	No	8
8	Group (2 or more)	No	5	Yes	No	10
9	Individual	No	4	Yes	No	8
10	Group (2 or more)	No	6	No	No	9
11	Group (2 or more)	N/A	N/A	N/A	N/A	N/A
12	Group (2 or more)	No	4	Yes	No	6
13	Group (2 or more)	No	3	Yes	No	4
14	Group (2 or more)	No	3	Yes	No	8
15	Group (2 or more)	No	5	No	No	9
16	Individual	No	5	No	No	7
17	Individual	No	4	Yes	Yes	6
18	Individual	No	6	Yes	No	8
19	Group (2 or more)	No	5	Yes	No	9
20	Group (2 or more)	No	5	Yes	Yes	10

#	c) Is there anything you dislike about the idea of our tour?	i) Why?	4. How comfortable would you be using this technology?
1	You can't take your own route	N/A	6
2	Silence that comes with going through on your own	N/A	5
3	N/A	N/A	6
4	N/A	N/A	5
5	Time restriction and wrong position might be a problem	N/A	6
6	Fixable - if you go to the wrong place has to be able to correct	N/A	6
7	No	N/A	6
8	Sometimes GPS repeats	N/A	6
9	People won't like u giving out gps coordinates	N/A	6
10	No	N/A	6
11	N/A	N/A	N/A
12	Storytelling is more important than just facts	N/A	6
	Audio tours are too linear		
13	Likes storytelling	N/A	6
14	N/A	N/A	6
15	No	N/A	5
16	Accent	N/A	6
17	More time on the thing - goes on its own - mismatch in time - mismatch in coordination	N/A	6
18	May have GPS issues	N/A	5
19	No	N/A	5
20	Depends on how it's set up, I like to be able to pause so I can go off the tour, pause it, change directions	N/A	4

#	5. Which of these words describe your approach to this product? (select all that apply)	Additional Comments	1. Do you have a smartphone?	a) Do you have the ability to download an app right now?	Additional Comments
1	Excited, Interested, Curious	N/A	Yes	Yes	N/A
2	Interested, Curious	N/A	Yes	No	Not without wifi
3	Interested, Amazed, Curious	N/A	Yes	Not Sure	N/A
4	Interested, Enthusiastic, Amazed	N/A	Yes	No	N/A
5	Interested, Curious	N/A	Yes	Yes	N/A
6	Interested, Enthusiastic, Curious	N/A	Yes	Yes	Would have to pay for data to download
7	Interested, Enthusiastic, Curious	N/A	Yes	Yes	N/A
8	Interested, Enthusiastic, Curious	N/A	Yes	Yes	N/A
9	Excited, Interested, Curious	N/A	Yes	No	N/A
10	Interested, Enthusiastic	N/A	Yes	Yes	N/A
11	N/A	N/A	N/A	N/A	N/A
12	Curious	N/A	Yes	Yes	N/A
13	Resistant, Indifferent, Uninterested	N/A	Yes	Yes	N/A
14	Excited, Interested, Amazed, Curious	N/A	Yes	Yes	N/A
15	Excited, Interested, Curious	N/A	Yes	Yes	N/A
16	Excited, Enthusiastic, Curious	N/A	No	N/A	N/A
17	Enthusiastic	N/A	Yes	Yes	N/A
18	Interested, Curious	N/A	Yes	Yes	N/A
19	Excited, Interested, Curious	N/A	Yes	Yes	N/A
20	Interested, Enthusiastic, Curious	N/A	Yes	Yes	N/A

#	1. Do you have any questions?
1	No
2	N/A
3	N/A
4	Is it a student project?
5	N/A
6	N/A
7	N/A
8	Is there an option to not use headphones
9	N/A
10	N/A
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

USER EXPERIENCE POST-INTERVIEW DATA:

This is data from the interview we gave test users after they took the tour. The “#” is the user number, and is on every page so the data can be compared between users.

#	What kind of Data point is the person?	2. Age	3. Gender	4. Country of Origin	5. Native Language	6. Whom are you visiting Kinkaku-ji with?	a) Explain if other
1	Individual	35 to 49	Female	Netherlands	Dutch	Alone	N/A
2	Individual	18 to 34	Male	Spain	Spanish	Alone	N/A
3	Group (2 or more)	18 to 34	Male	China (Hong Kong)	Cantonese	Family	N/A
4	Group (2 or more)	35 to 49	Female	China (Hong Kong)	Chinese	Family	N/A
5	Group (2 or more)	35 to 49	Female	Ireland	English	Friends	N/A
6	Group (2 or more)	35 to 49	Male	Ireland	English	Friends	N/A
7	Group (2 or more)	35 to 49	Male	Poland	Polish	Friends	N/A
8	Group (2 or more)	35 to 49	Male	Poland	Polish	Friends	N/A
9	Individual	18 to 34	Female	Australia	English	Alone	N/A
10	Group (2 or more)	35 to 49	Male	Belgium	French	Friends	N/A
11	Group (2 or more)	18 to 34	Male	Belgium	French	Friends	N/A
12	Group (2 or more)	18 to 34	Female	Brazil	Portuguese	Significant Other	N/A
13	Group (2 or more)	18 to 34	Male	Israel	Hebrew	Significant Other	N/A
14	Group (2 or more)	18 to 34	Male	United Kingdom	English	Family	N/A
15	Group (2 or more)	18 to 34	Male	England	English	Family	N/A
16	Individual	Below 18	Male	India	Hindi	Family	N/A
17	Individual	35 to 49	Female	India	Hindi	Family	N/A
18	Individual	35 to 49	Male	India	Hindi	Family	N/A
19	Group (2 or more)	50 to 64	Female	USA	English	Family	N/A
20	Group (2 or more)	50 to 64	Female	USA	English	Family	N/A

#	7. How long are you staying in Japan?	Additional Comments	What are some other sites that you have visited or are planning on visiting in Kyoto?
1	8 Days	Had a booklet from a bike tour she took to help her navigate	Fushimi Inari, Bamboo Forest
2	30 Days	N/A	Fushimi Inari, Gion, Kodeiji, Philosopher Path, Kiyomizu-dera, Arashiyama
3	6 Days	N/A	Nishiki Market, Nijo Castle, Kiyomizu-dera, Tofukuji Temple, Fushimi Inari, Taisha Shrine
4	6 Days	N/A	Nishiki Market, Nijo Castle, Kiyomizu-dera, Tofukuji Temple, Fushimi Inari, Taisha Shrine
5	9 Days	N/A	Nishiki Market, Higashihonganji Temple, Nicashihonganji Temple, Toji
6	9 Days	N/A	Nishiki Market, Higashi Honganji temple, Nikaoji Temple, Toji
7	17 Days	N/A	Nijo-jo, Myoshin-ji, Gion, Koto-in, Kodai-ji, Nanzen-ji (including Nanzen, san mon, and hojyo)
8	17 Days	N/A	Nijo-jo, Myoshin-ji, Gion, Koto-in, Kodai-ji, Nanzen-ji (including Nanzen, san mon, and hojyo)
9	15 Days	N/A	Fushimi Inari-Taisha, Kyoto tower, Nishiki Market, Kiyomizu dera, Arashiyama monkey park
10	10 Days	N/A	Ginkaku-ji, Kiyomizu-dera, Sanjusangen-do, Tofuku-ji, Fushimi Inari, Nanzen-ji, Eikan-do, Honen-in, Kodai-ji
11	10 Days	N/A	Ginkaku-ji, Kiyomizu-dera, Sanjusanden, Tofukuji, Fushimi Inari, Nanzen-ji, Eikan-do, Honen-in, Kodai-ji
12	13 Days	N/A	Gion, Yasoko(sp?) Shrine, Amashiyama(sp?), Nara
13	14 Days	N/A	Funaoka Onsen, Gion, Arashiyama, Nara
14	12 Days	Chose 3 for "how would you rate your ability to find and navigate to these sites"	Bamboo Forest, Fushimi Inari, Nijo Castle, Nishiki Market
15	12 Days	N/A	Bamboo forest, Fushimi Inari, Nijō Castle, Nishiki Market, Gion District
16	10 Days	N/A	Nijō Castle, Imperial Palace, Bamboo Forest
17	9 Days	N/A	Nijo Castle, Fushimi Inari, Bamboo Forest
18	10 Days	N/A	Bamboo forest, Nijō Castle, Imperial Palace
19	2 weeks	N/A	All tourist spots
20	8 Days	N/A	All significant tourist spots

#	On a scale from 1-6, how would you rate your ability to find and navigate to these sites	1. Why did you come to Kinkaku-ji?	2. How did you find out about Kinkaku-ji?	3. Did you do any research before coming to Kinkaku-ji?	a) If yes, what research did you do?
1	5	Her friend told her about it	Friend told her about it	No	N/A
2	6	Read on a guide it was the most important temple	Guide and google (what to see in Kyoto)	No	N/A
3	6	It is a famous tourist spot recommended by various tourist site guides.	Via the internet	Yes	How to get to said location.
4	5	It's history, it's famous. The scenery.	Internet	Yes	Internet
5	6	Recommended by someone to go	Recommended by someone and popped up as one of top places to go in Kyoto	No	N/A
6	3	Recommendation from Colleague	Friend at work	No	N/A
7	5	To see the beautiful golden temple	From the internet	Yes	Found out about it on the internet
8	5	One of the most important temples in Kyoto	Internet (before our trip)	Yes	Just checking online what is worth seeing in Japan
9	5	Heard it was beautiful and a must see	Online	Yes	Looked at location, price, if it was worth seeing
10	6	Recommendation in a book	Beautiful temple but the garden is not so impressive	Yes	In a book
11	6	Recommendation in my book	Temple is beautiful! The rest not very impressive...	Yes	In a book
12	6	My significant other wanted to make me a surprise	Stunning, most beautiful temple in japan so far	No	N/A
13	6	Looked interesting in a poster	Poster/website	Yes	Where it is relative to the rest of our daily itinerary
14	3	Word of mouth, instagram, looks amazing	word of mouth, from friends and from someone in a hostel in Tokyo	Yes	google, speaking to others who have been here
15	3	Recommendation from friend and looked amazing on the images	Word of mouth and tourist information	No	N/A
16	4	As a tourist it is famous	Internet	No	N/A
17	5	Heard and read about it so wanted to see the place	Internet and information booklets	No	N/A
18	5	To visit this historical/ scenic beauty	Friend/Internet	No	N/A
19	2	Beauty/Reputation	Friends	No	N/A
20	6	Suggested by guide	Tour guide	Yes	Online

#	4. Did you download any tourist or travel apps before coming to Kinkaku-ji?	Additional Comments	1. How many audio tours have you taken before?	2. Based on your previous audio tour experience, how much would you expect to pay for this product (tour)? Answer in your preferred currency	\$\$ Expect for Product
1	No	N/A	N/A	N/A	N/A
2	No	N/A	1 to 3	\$1 to \$3	N/A
3	No	N/A	0	\$0	N/A
4	No	N/A	7 to 9	\$1 to \$3	N/A
5	No	N/A	1 to 3	\$4 to \$6	N/A
6	No	N/A	1 to 3	\$4 to \$6	N/A
7	No	N/A	1 to 3	\$7 to \$9	N/A
8	Yes	N/A	4 to 6	More than \$9	N/A
9	No	N/A	1 to 3	\$0	¥0
10	No	N/A	0	N/A	N/A
11	No	N/A	0	N/A	N/A
12	No	N/A	1 to 3	\$4	¥569
13	No	N/A	7 to 9	\$5	¥569
14	No	N/A	4 to 6	8 british pounds (10.31 usd)	¥1,159
15	No	N/A	1 to 3	10 pounds	¥1,449
16	Yes	N/A	0	6400 INR - \$90	¥10,287
17	No	N/A	1 to 3	500 INR (\$6.25)	¥804
18	No	N/A	1 to 3	1000 INR - \$14	¥1,607
19	No	N/A	1 to 3	\$50	¥5,689
20	Yes	N/A	More than 9	\$10 - \$20	¥2,276
					avg
					¥2,441

3. Based on your previous audio tour experience, how much would you expect to pay for the audio tour of Kinkaku-ji?		4. Of the audio tours you've taken, what are some aspects that you liked?	a) Why?
#	Answer in your preferred currency	\$\$ Expect for Tour	
1	N/A	N/A	N/A
2	N/A	¥341	He likes to go by himself, so he doesn't like to do tour groups
3	N/A	¥0	N/A
4	N/A	¥341	N/A
5	N/A	¥683	N/A
6	N/A	¥683	N/A
7	N/A	¥1,024	N/A
8	N/A	>1024.10	N/A
9	¥0	¥0	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	\$5.00	¥455	N/A
13	Not more than entrance fee	¥400	N/A
14	4 british pounds (5.16 usd)	¥580	N/A
15	4 pounds	¥580	N/A
16	800 INR - \$12	¥1,286	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	\$10	¥1,138	N/A
20	\$2-\$5	¥569	N/A
		avg	
		¥577	

#	Additional Comments	1. How much have you learned about Kinkaku-ji by taking the tour?
1	N/A	5
2	N/A	5
3	N/A	5
4	N/A	4
5	N/A	5
6	N/A	6
7	Question 2: He says he paid between 500 and 1000 yen.	5
8	N/A	5
9	N/A	5
10	N/A	3
11	N/A	3
12	N/A	2
13	N/A	3
14	N/A	4
15	N/A	4
16	N/A	4
17	N/A	4
18	N/A	4
19	N/A	3
20	N/A	4

#	a) What did you learn?
1	Why it was built, is a world heritage center because of the garden - not because of the temple, what the inside would have looked like (wouldn't have seen the pictures bc without the app), Buddhism & Shinto
2	-Carp that jumps the waterfall become dragons -There's a phoenix on the top of the golden pavillion, which makes sense after the "fire" -there's an island in the lake with the shape of Japan, minus Hokkaido, as at that time wasn't conquer
3	-About the throwing coins: Big bucket = good luck, Small bucket = very good luck, Hit head Buddha and small bucket = Jackpot straight to heaven
4	Trivia regarding carp in Japanese culture, the temple was once burnt down by a mad monk, etc (historical trivia).
5	History, the different parts of it. Carp and dragons Shinto and Buddhism separation 3D painting created by having background scenery and temple meld together with the landscape
6	Savage, traitorous emperor Islands in front are in shape of Japan but no north island as was not part of Japan at the time Inclusive Buddhist temples Golden temple burnt down by mad monk!
7	-about phoenix -about island on the lake (Honshu shape) -about pretty spots, views (where is the best place to take pics) -about dragon shape in waterfall (which I didn't see of course :))
8	Who built it and when. About the garden and its meaning. Some interesting info about the temples features.
9	History of the temple, the reason for the phoenix, the history of Japan buddhism
10	Other than things about the temple
11	Other things than about the temple
12	The temple/garden was designed to be a "3D painting" with the mountains, lake, etc. The temple was burnt and rebuilt
13	There was a civil war the island in the pond looks like a part of Japan
14	3 of the 4 photos of the inside How and why Kinkaku-ji was built. Explained different features of the temple.
15	When it was formed in the 14th century The phoenix bird damaged in the 15th century
16	About its history Origin Restoration
17	Landscape
18	Historical Aspect
19	History, culture
20	Story, history, significance

2. Did you enjoy the information provided in the audio tour?		a) Why?	3. Was there enough information in the tour?
1	5	Background info (honshu island and world heritage site), lots of extra info since there are no info boards, carp information and waterfall	Yes
2	5	N/A	Yes
3	6	N/A	Yes
4	4	N/A	No
5	6	N/A	Yes
6	6	Because he wasn't prepared and didn't do any research so if not for the tour he would've just walked past it without any information	Yes
7	6	N/A	Yes
8	5	N/A	Yes
9	6	N/A	Yes
10	6	N/A	Yes
11	6	N/A	Yes
12	3	N/A	No
13	3	N/A	Yes
14	5	N/A	Yes
15	4	N/A	Yes
16	5	N/A	Yes
17	4	N/A	No
18	5	N/A	Yes
19	5	N/A	No
20	4	N/A	No

#	4. Is there anything you would have liked to hear more about?	a) Why?	5. Was the narrator clear and understandable?
1	Information about the shrine at the end (Lots of good information but very fast and too much for one segment - maybe split and talk slower), Also at the end needed to focus on the stairs and not listen to the audio as much, She received a phone call and was worried that the audio got displaced - would have preferred the audio backtracked either to the beginning or a few seconds back	N/A	Yes
2	Yes, maybe a couple of the buildings.	Wasn't sure which one was the tea house. He was also at the other building (right after the alcove, on the right) when the phoenix part started playing.	Yes
3	Tea house, etc (more locations within the overall site).	N/A	Yes
4	More of everything.	Having a lot of information gives the app value, otherwise it is not worth the money. Having a lot of information is a selling point.	Yes
5	There is room to include more information	N/A	Yes
6	No - pace was excellent	N/A	Yes
7	No	N/A	Yes
8	Maybe something about this location. Something more about the shogun who built the temple (and his son maybe?).	N/A	Yes
9	No	N/A	Yes
10	N/A	N/A	Yes
11	N/A	N/A	Yes
12	More curiosities about garden and temple Things to enhance my experience	N/A	Yes
13	How did you know the carp would be in that corner?	Reason behind why carps are not all over the pond	Yes
14	N/A	N/A	Yes
15	N/A	N/A	Yes
16	Its construction	N/A	Yes
17	More history and architecture	N/A	Yes
18	N/A	N/A	Yes
19	More detail on sites	N/A	Yes
20	More in-depth info	N/A	Yes

#	6. What did you think of the pace of the narration?	a) Why?	7. What did you think of the tone of the narration?	a) Why?
1	4	Too fast at the end	6	N/A
2	5	N/A	6	N/A
3	5	N/A	6	N/A
4	5	N/A	3	The narration was a bit flat. It was also too formal. She would like it to be less formal, with a more fun and passionate tone (though not over the top).
5	6	N/A	6	N/A
6	6	N/A	6	N/A
7	6	N/A	4	His voice was too sad. He should be more enthusiastic.
8	5	N/A	4	N/A
9	5	Pace was good throughout	6	Tone was very calm and engaging
10	6	N/A	6	N/A
11	6	N/A	6	N/A
12	6	N/A	5	N/A
13	3	Pace was sometimes too slow and made it boring	2	Tone was a fine line between boring and calm. Some places needed his calm voice but at some places it needed to be exciting and his voice made it boring and not as engaging. Also he was not as engaged in the audio himself so I felt a disconnect from the material and tuned out.
14	5	Would like to have an easy to use pause function	5	N/A
15	5	N/A	5	N/A
16	6	N/A	4	N/A
17	5	N/A	5	N/A
18	5	N/A	5	N/A
19	6	N/A	6	N/A
20	3	N/A	4	N/A

#	8. Is there anything you wish you could have done with the app that you were unable to?	9. What are 3 words that describe your experience with the Kinkaku-ji tour?	Additional Comments
1	LIKED that she got some photos from when the building was burned, would potentially like to rehear the audio at a later time from a different location (like hotel) - make it easier to do than izi does	Modern, New Style, INteresting	N/A
2	N/A	Understandable, Humor, Precise	N/A
3	Find good spots to take photos Toilets, restaurants, etc	Short and sweet	N/A
4	N/A	Crowd, nice	She liked the details about the carp because she can't find that information on the internet. She wants an audio guide to contain information that she can't find online or in the brochure (in addition to having the online and brochure info).
5	I wasn't able to rewind by 10/15 seconds	Beautiful, Peaceful, Colourful	N/A
6	Zoom in/out and keep that zoom - being able to control	Informative, engaging, entertaining	N/A
7	I didn't see the sound icon on the main screen, so when I accidentally turned off the touns, I pushed play icon a couple of times until I found out that the sound was off (my bad :)) Clarification: The app didn't show what percentage the volume was set to, maybe it would be helpful if it showed what the volume was at.	Great, memorable, fun	N/A
8	Use without headphones. Possibility to go back 5 seconds.	Nice, peaceful, enjoyable	N/A
9	No	Good, interesting, fun	N/A
10	N/A	Gold, crowded, temple	N/A
11	No	Beautiful, gold, impressive	N/A
12	N/A	Informative, good	N/A
13	Read instead of listen	Beautiful, poorly-timed, informative, boring	N/A
14	replay previous audio	stunning, culture, historic	He thought the tour was a good length for the size of the location.
15	Being able to intersect and use the app as well as the audio, enabling to rewind information that you heard	Beautiful, glamorous, eye-catching	N/A
16	N/A	Informative, cool, GPS	N/A
17	It trips in between	It was great	N/A
18	N/A	Informative, serenity	N/A
19	N/A	Lovely, interesting	N/A
20	Access images, access more history	frenetic, interesting, cold	N/A

#	1. How likely would you be to recommend this tour to other people?	a) Why?	2. In your preferred currency, how much would you be willing to pay for the product (tour)?	Pay for Product	3. In your preferred currency, how much would you be willing to pay for the Kinkaku-ji tour?	Pay for Tour
1	6	Easy to use and gives you correct information and something people want	\$1 to \$3	N/A	N/A	¥341
2	5	N/A	\$1 to \$3	N/A	N/A	¥341
3	5	N/A	\$1 to \$3	N/A	N/A	¥341
4	4	Needs to have more info for her to really recommend it.	\$1 to \$3	N/A	N/A	¥341
5	6	N/A	\$1 to \$3	N/A	N/A	¥341
6	6	N/A	\$1 to \$3	N/A	N/A	¥341
7	6	N/A	\$4 to \$6	N/A	N/A	¥683
8	6	N/A	\$1 to \$3	N/A	N/A	¥341
9	6	N/A	N/A	N/A	\$1-\$3	¥341
10	5	N/A	1 to 3 Euro	¥385	2 to 3 Euro	¥385
11	6	N/A	\$1-\$3	N/A	N/A	¥341
12	2	She felt she needed to rush to the end bc she was conscious that this was our time as well	\$4	¥455	\$1	¥114
13	3	Audio was too boring at times and it didn't enhance my experience it too me away from it and made it into a commentary that I have to listen through	\$5	¥569	99 cents	¥113
14	5	N/A	8 pounds (10.29 usd)	¥1,159	4 pounds (5.16 usd)	¥580
15	5	N/A	10 pounds	¥1,449	4 pounds	¥580
16	5	N/A	1500 INR - \$21	¥2,411	800 INR - \$11	¥1,286
17	4	N/A	500 INR	¥804	500 INR	¥804
18	5	N/A	1000 INR - \$14	¥1,607	1000 INR - \$14	¥1,607
19	3	N/A	\$50	¥5,689	\$10	¥1,138
20	2	N/A	\$10-\$20	¥2,276	\$2-\$5	¥569
				avg		avg
				¥1,681		¥546

#	a) Why?	3. Would you prefer...	Additional Comments
1	N/A	N/A	N/A
2	He's not working right now, he's just travelling, so he is kind of cheap.	Pay for the entire app up front with all the sites included?	He also said he would prefer to pay for the whole app up front (for lots of sites) rather than paying per site. As he said, he knows he's coming to Kyoto so he'll get the whole app. If there was one for all of Japan he would get it.
3	N/A	Download the app for free and pay for individual sites as you go?	N/A
4	N/A	Pay for the entire app up front with all the sites included?	N/A
5	Worth 4-6 but would likely only pay 1-3	Download the app for free and pay for individual sites as you go?	N/A
6	Said its worth \$4-\$6 but knowing himself, he will only pay \$1-\$3	Download the app for free and pay for individual sites as you go?	Free app - IAP - if visiting for a short time, might think not worth the money to pay for sites they might not be able to visit Maybe \$1 per tour - likely to continue to find the sites Maybe GPS based - offer a tour when close to a site (Kyoto Wifi example)
7	N/A	Pay for the entire app up front with all the sites included?	N/A
8	N/A	Download the app for free and pay for individual sites as you go?	N/A
9	N/A	Download the app for free and pay for individual sites as you go?	N/A
10	N/A	Download the app for free and pay for individual sites as you go?	N/A
11	N/A	N/A	N/A
12	N/A	Download the app for free and pay for individual sites as you go?	N/A
13	N/A	Download the app for free and pay for individual sites as you go?	N/A
14	N/A	Download the app for free and pay for individual sites as you go?	He would prefer to pay for individual sites in case he is only here for a short time. However, he said that if he was here for a long time he would get the full thing.
15	N/A	Download the app for free and pay for individual sites as you go?	N/A
16	N/A	Download the app for free and pay for individual sites as you go?	N/A
17	N/A	Download the app for free and pay for individual sites as you go?	N/A
18	N/A	Pay for the entire app up front with all the sites included?	N/A
19	N/A	Pay for the entire app up front with all the sites included?	N/A
20	N/A	N/A	N/A

#	1. Is there anything else you liked about the tour that you haven't mentioned yet?	a) Why?	2. Anything else you disliked?	Why?
1	N/A	N/A	N/A	N/A
2	Humor and it's not boring with a lot of forgettable dates. I will remember the anecdotes.	N/A	N/A	N/A
3	The simplicity of the app and the clarity of the narration.	N/A	Not enough spots.	Not all of the places told you information
4	N/A	N/A	Can include more parts of the site, like the building near the entrance.	N/A
5	Good pace Great that it knows where you are Would be nice to have an "additional information" option Geared toward younger people (Won't get bored)	N/A	It stopped at one point without her realizing so ensuring that it doesn't pause by accident	N/A
6	Narrator's voice is perfect - relaxed and calming, but with right amount of well pitched humor - liked the humor	N/A	On occasion I expected something to happen (but there were technical difficulties)	App didn't trigger at times - if you pause the audio and then go through the triggers, the audio won't play
7	No	N/A	N/A	N/A
8	More enthusiastic narration :)	N/A	GPS didn't work for 1-2 times (didn't trigger audio)	N/A
9	I liked that it was casual and jokes were made	N/A	Sometimes it started a second or two before I felt I was close to the spot it was talking about	Happened at the waterfall and the buddhist coin toss
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	The carp story was beautiful	N/A	Historical facts - assuming i knew what they were talking about	N/A
13	The phoenix story was cool also	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A
15	The audio navigation was good. Found the items it was talking about. I also like the GPS side of things.	N/A	No	N/A
16	It had a clear and concise tone	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A
18	No	N/A	No	N/A
19	N/A	N/A	Ear buds fall off the ears too often	N/A
20	N/A	N/A	N/A	N/A
		N/A	There is no substitute for a docent	N/A

#	3. Is there anything you would change about this tour?	Why?	4. How satisfied were you with this experience?	Additional Comments
1	N/A	N/A	8	N/A
2	Once it started talking and I was not in the spot. It was when it talks about the Phoenix.	N/A	8	N/A
3	Add versions in other languages (Mandarin, Spanish, etc)	N/A	9	N/A
4	Make it more interesting - more details provided about the site, and change the tone of the narration. In addition, the app should tell you if you miss a site.	N/A	7	N/A
5	Possibly include a 'further reading' section or 'further explanation' part. The whole audio tour is very well paced and it's good that you aren't bombarded with information so you are given a chance to enjoy the beautiful surroundings. However, it could be nice to listen to some more info if you were interested in a particular aspect	N/A	10	Change the sign: Mention that we are students doing research
6	No - it's excellent	N/A	10	N/A
7	Problem 28 (The tone of the narration)	N/A	9	N/A
8	N/A	N/A	8	N/A
9	No other than above reason	N/A	10	N/A
10	N/A	N/A	9	N/A
11	N/A	N/A	9	N/A
12	Less historical facts and more curiosities to enhance my experience	N/A	3	N/A
13	Enhance my experience of being there; don't pull me away from what I'm here for. Immersion in the right way	Immersion is like seeing a movie and the director knows where to point your attention so you feel you are part of the movie not looking at it from a distance. I am not there to listen to audio; I am there to be a part of an experience. The monologue was too long - so either replace it with music as we walk through the path or tell a really awesome story.	3	N/A
14	no	N/A	8	N/A
15	Being able to intersect and use the app as well as the audio, enabling to rewind information that you heard	N/A	8	N/A
16	N/A	N/A	9	N/A
17	No	N/A	8	N/A
18	N/A	N/A	7	N/A
19	More detail	N/A	6	N/A
20	see previous	N/A	4	N/A

KINKAKU-JI EXIT SURVEY DATA:

This is data from the Kinkaku-ji exit surveys. The “#” column is a column of reference numbers to keep track of each individual’s responses.

#	1. How old are you?	2. What is your gender?	3. What is your country of origin?	4. What is your native language?	5. Do you live in Japan or are you just visiting?	a) If you are visiting, for how long?	1. Are you visiting Kinkaku-ji for the first time?
1	18 to 34	Female	France	French	Visiting	2 weeks	Yes
2	18 to 34	Female	Finland	Finish	Visiting	2 weeks	Yes
3	18 to 34	Female	France	French	Visiting	2 weeks	Yes
4	18 to 34	Male	United States	English	Visiting	2 weeks	Yes
5	18 to 34	Female	Puerto Rico	Spanish	Visiting	10 days	Yes
6	18 to 34	Female	Japan	Japanese	Live here	N/A	Yes
7	18 to 34	Male	United States	English	Visiting	2 Weeks	Yes
8	35 to 49	Male	Lithuania	Lithuanian	Visiting	11 Days	Yes
9	18 to 34	Female	Japan	Japanese	Live here	N/A	No
10	18 to 34	Female	Malaysia	Chinese	Visiting	A week	Yes
11	18 to 34	Male	Finland	Finnish	Visiting	1 week	Yes
12	18 to 34	Female	Finland	Finnish	Visiting	Week	Yes
13	18 to 34	Male	Germany	Germany	Visiting	7 days	Yes
14	18 to 34	Male	Finland	Finnish	Visiting	1 week	Yes
15	35 to 49	Male	US	English	Visiting	10 days	Yes
16	18 to 34	Female	Usa	English	Visiting	10 fays	Yes

#	2. Are you visiting Kinkaku-ji with anybody else?	a) If yes, whom?	3. Why did you visit Kinkaku-ji?	4. What did you enjoy about it?	5. What are 3 words that describe your experience at Kinkaku-ji?
1	Yes	Friends	Golden pavilion	Gold trees of the season	Crowded colorful tasty
2	No		Temples don't know a lot it's famous must do in Kyoto	Beautiful looking at it relaxing packed	Stunning nice tired
3	No		On her list 2 temples famous one	Too many people gold temple autumn is pretty	Gold small emperor
4	Yes	Friends	Tourist	Nature	Peaceful, calm, serene
5	Yes	Family	Application visit a city	Temple and history	Beautiful fun touristy
6	Yes	Significant Other	Surrounding area is pretty and kinkaku Ji is cool	Nope	Nope
7	No		Heard it's the best temple	Pond	Crowded, relaxed, rainy
8	No		Friend recommend	-	-
9	No		Near university	GOLD	Beautiful, Traditional, Gold
10	No		Tourist Spot	The temple, the season	Love it
11	Yes	Friends	Heard from his friend that one of the main things to see in japan	Temple is pretty, nature and trees not as impressive as he thought	Beautiful touristy crowded
12	Yes	Friends	One of the sights to see in kyoto	The golden temple was cool	Crowded pretty traditional
13	Yes	Friends	Popular site - pictures are impressive	The view of the temple View of lake	Impressive, beautiful, touristic
14	Yes	Friends	Friend told him it is good	Nature and trees and Japanese landscapes and the ponds the scenery	Nature touristy crowded
15	Yes	Significant Other	Cuz it's gold	Good pictures/selfies	Claustrophobic, crowded, touristy
16	Yes	Significant Other	Third most popular on google	Interesting gold temple	Crowded busy crowded

#	6. Is there anything you wish you had known before coming to Kinkaku-ji?	a) If yes, what do you wish you had known?	7. How did you find out about Kinkaku-ji?	8. How much research did you do about Kinkaku-ji before coming here?
1	Yes	History	Lonely planet	Yup
2	Yes	Trivia history and why it s there background read more about it later facts	Google top thing	Not too much google what to do in Kyoto where is it on the map
3	No		Google	Where to gi
4	No		Internet	Nons
5	No		Application	Not a lot
6	No		Just cause they live in Japan	Yes google
7	No		Google	Googled
8	No		-	-
9	No		Japanese Elementary School	School
10	No		Google	None
11	Yes		Friend	No
12	Yes	Why was is build, did something interesting happened there, why gold.?	Google	Not much
13	Yes	History, origins of temple	Google, lonely planet	Basic info
14	No		Friend	Got to get there, price etc
15	Yes	History background, crowdedness bc holiday, time of day to come	Trip advisor, number 3 on there	No
16	Yes	How crowded it was bc of holiday	TripAdvisor	None

#	1. Have you taken an audio tour before?	a) How often do you take free audio tours of places you visit?	b) How often do you take paid audio tours of places you visit?	c) What are two things you like about audio tours?	d) What are two things you dislike about audio tours?
1	No				
2	No				
3	Yes	4	2	Easier in you're language	Headset hurts your ears
4	No	1	1	N/A	N/A
5	No				
6	No				
7	No				
8	No				
9	No				
10	No				
11	No				
12	No	1	1	You can do it on your own and you don't have to read	You don't get to talk with friends
13	Yes	2	1	Information Flexibility if going at own pace, skipping parts if necessary	Can't ask questions
14	Yes	4	1	Tour on your own not follow on your own you own pace	Nothing
15	Yes	6	6	It gives context for what's there, otherwise it's just a golden building, gives it meaning	I think they're great, sometimes they can be hard to use or the volume is messed up, lines to get the audio tour
16	Yes	3	4	Easy Informative Independence	Volume not calibrated Crowds making you drop device Germaphobe

#	2. What would you want in an audio tour?	3. How many guided tours have you taken?	a) What are two things you like about guided tours?	b) What are two things you dislike about guided tours?
1	History	None		
2	Just facts not too long and detailed maybe boring conversational	5	Stress free think about it yourself don't look at the map very convenient don't waste time positive and funny friendly	Don't like them cause u can't explore fast
3	Use ur own earphones or a headphone	Nope		
4	More information	None		
5	Ool	20	Context historical personal conversation	Pace is too fast doesn't match interests
6	—	School tours		
7	History	Not Many		Like to wander
8	History	3/4		
9	History, Travel Info (bus)	N/A		
10	Multi language, history	None		
11	History	No		
12	Interesting info, a good speaker	A few	You don't have to read before	You have to follow the group
13	Better overview on smartphone where you can see each chapter to skip and choose what you want Good useability	20	Personal touch/interaction Humor/jokes	Personal touch - if you don't like how they're guiding you Not being able to go at your own pace
14	General information is there but more detailed info like history	No		
15	History, gear it to different types of people	20 ish, once a trip	Tour guide can be really funny, personalized, there s a person there, questions, you can talk to them, I like to harras them and ask them questions. From locals - get their perspective, modern perspective	More costly, do mostly private tours. Bigger ones, too many ppl, wrong pace, hard to hear
16	Gear toward different types of people	20 - private not group	Personalized Ask them questions Local guides	More expensive Too many people if not private one Can't go at own pace

	1. How interested would you be in a mobile app that offered creative audio guides of Kyoto's major heritage sites including Kinkaku-ji??	2. How much would you be willing to pay for this product?	Pay for Product	3. How likely would you be to use this product if it was free?	Additional Comments
#					
1	4	\$0	¥0	5	
2	5	\$1 to \$3	¥341	6	
3	4	\$1 to \$3	¥341	5	Not too much space on her phone want one with in app purchases
4	3	\$1 to \$3	¥341	2	
5	5	\$10 to \$12	¥1,365	6	
6	3	\$0	¥0	4	
7	2	\$0	¥0	2	
8	6	20	¥2,276	6	
9	6	\$4 to \$6	¥683	6	
10	5	50	¥5,689	5	assume USD
11	4	\$4 to \$6	¥683	4	
12	5	\$1 to \$3	¥341	6	
13	5	\$4 to \$6	¥683	6	
14	4	\$0	¥0	5	
15	6	\$7 to \$9	¥1,024	6	
16	6	\$7 to \$9	¥1,024	6	
			avg		
			¥925		

GENERAL EXIT SURVEY DATA:

This is data from the general exit surveys performed at Ryoanji and Ginkaku-ji. The “#” column is a column of reference numbers to keep track of each individual’s responses.

#	Where You At?	1. How old are you?	2. What is your gender?	3. What is your country of origin?	4. What is your native language?	5. Do you live in Japan or are you just visiting?	a) If you are visiting, for how long?	Additional Comments
1	Ryoanji	18 to 34	Female	Germany	German	Live here for one year		
2	Ryoanji	Above 64	Other	US	English	Visiting	A week	
3	Ginkakuji	18 to 34	Male	Indonesia - Phillipines	Indonesian - Phillipino	Visiting	11 days	
4	Ginkakuji	50 to 64	Female	Singapore	English	Visiting	18 days	
5	Ginkakuji	35 to 49	Male	Russia	Russian	Visiting	1 week	
6	Ginkakuji	18 to 34	Female	Australia	English	Visiting	12 days	
7	Ginkakuji	50 to 64	Male	US	English	Visiting	10 days	
8	Ginkakuji	18 to 34	Female	France	French	Visiting	1month	
9	Ginkakuji	18 to 34	Female	Italy	Italian	Visiting		
10	Ginkakuji	Under 18	Male	Australia	English	Visiting	17 days	
11	Ginkakuji	Under 18	Male	Australia	English	Visiting	17 days	Part of group
12	Ginkakuji	Under 18	Male	Australia	English	Visiting	17 days	Group see others
13	Ginkakuji	Under 18	Female	Australia	English	Visiting	17 days	

#	1. Are you visiting _____ for the first time?	2. Are you visiting _____ with anybody else?	a) If yes, whom?	3. Why did you visit _____?	4. What did you enjoy about it?	5. What are 3 words that describe your experience at _____?
1	No	No		First time because it was really recommended like unique special Stone garden. Good example for other Stone gardens. We decided to come here because her University is nearby. Beautiful nature	The stone garden for tea ceremony and a pond. There's one tree that's very nice that looks like a painting.	Nature, Peaceful, Crowded
2	No	Yes	Family	Wonderful memories - been here many times	Simple and zen - rock garden and simplicity of construction	Tranquil, meditative memories
3	Yes	Yes	Significant Other	Google what to do in Kyoto	Trees, views, leaves	Serene, beautiful, amazing
4	Yes	Yes	Family	Googled it and said beautiful-already went to golden	Colorful, lakes, colors of trees	Fantastic, vibrant, colorful
5	Yes	Yes	Family	Good reviews and well known attraction	Garden and beauty	Serene, beautiful, calming
6	Yes	Yes	Family	General visit	Colors	Serene, colorful, elegant
7	Yes	Yes	Family	Fodors travel	Serenity	Peaceful, beautiful, well managed
8	Yes	Yes	Friends	Because 4 years ago she saw kinkaku-ji	The Zen garden and the view of the city is really nice, and the time is nice	Old, cultural, peaceful
9	Yes	Yes	Friends	Friend recommended	Harden is beautiful	Beautiful crowded colorful
10	Yes	Yes	School group	School group	Sand Scenery Autumn leaves	Beautiful perfect elegant
11	Yes	Yes	School group	School group	Sand, leaves and trees	Amazing, beautiful, authentic
12	Yes	Yes	School group	School group	Clean	Mind-boggling, beautiful, unique
13	Yes	Yes	School group	School group	Everything was beautiful Sand was cool	Beautiful interesting amazing

#	6. Is there anything you wish you had known before coming to _____?	a) If yes, what do you wish you had known?	7. How did you find out about _____?	8. How much research did you do about _____ before coming here?
1	No		From her University orientation, from her travel guide	None
2	Yes	Distance between kinkakuji	Been here many times	None
3	Yes	Places to eat	Google	Google
4	No		Googled	Googled everywhere
5	Yes	History and Buddhism and such	Laundry list for tourists on trip advisor	Trip advisor and Tokyocheapo
6	No		Websites colleagues	Above
7	No		Fidors	20 min
8	No		From her first travel in Kyoto, ppl in a hostel	None
9	Yes	History	Friend	None
10	No		School group	None
11	Yes	The temple was brown not silver	School group	None
12	Yes	The color thing (it's brown and white not silver)	School group	None
13	Yes	The color of the temple (it's brown and white not silver)	School group	None

#	1. Have you taken an audio tour before?	a) How often do you take free audio tours of places you visit?	b) How often do you take paid audio tours of places you visit?	c) What are two things you like about audio tours?	d) What are two things you dislike about audio tours?	2. What would you want in an audio tour?
1	Yes	4	1	Nice to have English or German guide for language barrier.	Focus on audio guide too much and not the place you're at Isolate you from your friends	Historical facts. Want the context for what you're looking at
2	No	6	6	Hear things immediate and present in way u don't get out of book	Too long	Balance of information and interesting, guides. Want more info u can choose that option
3	No	1	1			History and significance, descriptions of buildings - significance, interesting things
4	No					History
5	Yes	2	5	More info and helps focus on important things	Not always easy	More info and history
6	No					History, significance
7	Yes	3	2	Go at own pace	Challenging - finding places	History background, how things relate to each other
8	Yes	6	4	In her own language, easier to understand	Different story from what the in person guide was saying	The story, how it was built, why, who lived there
9	Yes	6	1	Own pace choose language	Interference	Chose language, hear clearly and adjust volume
10	No					History
11	Yes	2	2	Listen and take things in	Always have to listen, can miss things	Descriptions of where the objects came from, their origin, history of it, how they were used
12	No					Interesting history, when the temple was made, what they used, who made it.
13	Yes	2	1	Lots of info in English		History Used for present day

#	3. How many guided tours have you taken?	a) What are two things you like about guided tours?	b) What are two things you dislike about guided tours?	1. How interested would you be in a mobile app that offered creative audio guides of Kyoto's major heritage sites including _____?	2. How much would you be willing to pay for this product?	Pay for Product
1	15-20 (all of her life)	You can ask questions and sometimes the tour guide can provide certain special facts	Sometimes too fast	5	\$4 to \$6	¥683
2	Many many			5	\$10 to \$12	¥1,365
3	None - none			4	\$4 to \$6	¥683
4	Yes	Helpful info	Restrictive	6	More than \$12	¥5,120
5	Rarely			5	\$10 to \$12	¥1,365
6	Many	Information	Restrictive	6	\$10 to \$12	¥1,365
7	20	Freedom of pace	Quality is subjective, uneven	4	\$10 to \$12	¥1,365
8	2-3	More interesting bc person gives it a living experience	They can rush you through smetimes	3	Less than 5 euro	¥642
9	2	Ask questions Explain things - 'ore information	Go at the pace of others	4	\$4 to \$6	¥683
10	0			5	\$1 to \$3	¥247
11	6-7	They show you lots of things around the area, and they have the knowledge, see it in real life	May go to a place you find boring	5	20 dollars Australia	¥1,645
12	20	They know all the history of the places and give good explanations	Sometimes they ramble on about thing you don't care about	6	15 Australia	¥1,234
13	5		Go at others pace	6	\$10 to \$12	¥987
						avg
						¥1,337

#	Additional Comments
1	4-6 if she was only here for 4 days
2	
3	Would want to know about app before they came to Kyoto- came from Tokyo so
4	Was willing to pay \$45 for the product
5	Likes audio tours bc good for solo tourist but can't do with kids as much
6	
7	
8	
9	
10	Used AUD
11	Used AUD
12	Used AUD
13	Used AUD

KYOTO STATION SURVEY DATA:

This is data from the short surveys performed at kyoto station. The “#” column is a column of reference numbers to keep track of each individual’s responses.

#	Age	Gender	Country of Origin	How interested would you be in a mobile app that offered creative GPS based audio guides of Kyoto's major heritage sites?	In your preferred currency, how much would you be willing to pay for such a product?	Pay for Product
1	18 to 34	Male	Italy		5	\$0
2	18 to 34	Male	Netherlands		5 3 euros	¥385
3	18 to 34	Female	Australia		4 5 aus dollars	¥411
4	18 to 34	Male	Australia		4 5 Australian Dollars	¥411
5	18 to 34	Female	Germany		5 4 euros	¥514
6	35 to 49	Male	USA		4 USD 5	¥569
7	18 to 34	Female	Germany		5 5 euros	¥642
8	35 to 49	Male	Netherlands		5 5usd	¥569
9	18 to 34	Male	Germany		6 3-5 euros	¥642
10	18 to 34	Male	Germany		5 5 euros	¥642
11	18 to 34	Male	Canada		4 10 Canadian dollars	¥855
12	35 to 49	Male	Netherlands		5 5 euros	¥642
13	18 to 34	Female	Canada		6 10usd	¥1,138
14	18 to 34	Female	UK		5 10 - 15 usd	¥1,707
15	18 to 34	Male	UK		5 10-15usd	¥1,707
						avg
						¥722

Note - The following method was used to standardize the payment data from all of the raw data:

Assume prices are in USD unless otherwise specified. We’re looking for the maximum a person would pay for the tour or product, so we assume this value to be the upper limit of the price range they selected. For example, if someone checked off “\$4 to \$6”, we’d put them down as willing to pay \$6. All values were converted to JPY using the following conversion rates obtained on 11/28 at 11am JST. Also, it was only halfway through user experience testing users were asked how much they would be willing to pay for the tour, so the first

11/20 test users’ response to the payment question is assumed to be how much they would be willing to pay for the Kinkaku-ji prototype.

Currencies:

USD to JPY: 1 United States Dollar equals 113.79 Japanese Yen

AUD to JPY: 1 Australian Dollar equals 82.24 Japanese Yen

INR to JPY: 1 Indian Rupee equals 1.61 Japanese Yen

EUR to JPY: 1 Euro equals 128.46 Japanese Yen

GBP to JPY: 1 Pound sterling equals 144.94 Japanese Yen

CAD to JPY: 1 Canadian Dollar equals 85.53 Japanese Yen

APPENDIX I: GUIDE FOR NARRATORS

On the next page, there is a guide for narrators. See the “Additional Considerations” section for instructions on how to use the guide.

Narration Guide

Pace

Keep a Steady Pace of 170 Words per Minute

References:

- Kinkakuji Prototype v1.0 izi.TRAVEL, Kyoto VR
- YouTube Video: youtu.be/RHVCZ-EmUkc
- YouTube Video: youtu.be/A50rOCPevzc

Tone

Keep a Calm and Steady Tone

Vary Inflection to Emphasize Important Parts

Even though a calm and steady tone is desired by most users, inflection of certain parts keeps the audio from becoming monotone and boring.

References:

- Kinkakuji Prototype v1.0 izi.TRAVEL, Kyoto VR
- YouTube Video: youtu.be/5hvVjOqk_4o

Content

Topics

Include information regarding the following topics in the content:

- History; Stories about individual people
- Cultural Background; Traditions that
- Architecture; How it relates to its surroundings
- Jokes and Fun Stories

Additional Considerations

- 2-4 anecdotes for every 20 minutes of audio
- Make observations that a normal tourist wouldn't usually make
- Make sure to mention all the buildings at the site location
- Use the phrase "People often ask me" in order to replicate question-answer

Directional Language

Define a Prelude for the Directional Language

At the beginning of the experience, define the directional language you will be using throughout the tour, e.g.:

"When I refer to your right, I mean the direction to your right when facing forward on the path."
"Please pay close attention to the audio; at the end of some segments I may have instructions as to where I would like you to go next"

Use Uniform Language throughout the Tour

